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PERADENIYA CENTENARY.

The present number of the Tropical Agriculturist contains an account of the work of Peradeniya since its establishment in 1822. It is thought that this account could not fail to be of interest to those at present engaged in the agricultural development of the island as it shows the various stages in the work of the Royal Botanic Gardens and the gradual evolution of the Department of Agriculture.

The records of the past are too often forgotten and as the records of Peradeniya are so intimately connected with the history of the various agricultural products which have been successfully cultivated in Ceylon, it was thought that the present occasion should be taken to collect together the details of the work of Peradeniya and to indicate the effect of such work.

The early records show that Peradeniya was selected in order that attempts could be made to develop the cultivation of coffee. Considerable areas of this crop were planted on Crown Lands within close proximity of the Gardens but the records do not show what area was actually planted within the Gardens themselves.

The decline of coffee necessitated the engagement of a Mycologist for the staff of Peradeniya, the opening of Hakgala for the cultivation and distribution of cinchona, the opening of Heneratgoda for the cultivation of rubber and attention being given to cacao, tea and other crops.

The first scientific work naturally centred around the investigation of the local flora, and the collections made by various Superintendents and Directors of the Gardens resulted in the production of a Colonial Flora which was considered a model upon which others should be based.

In conjunction with this investigation of the local flora, work of introduction and acclimatisation took place, and few people at present realize how many of the beautiful trees and plants which are now common in the Colony owe their introduction to the early efforts of Peradeniya.

As the work progressed, it became evident that attention should be given to the pests and diseases of local plants and crops and to the investigation of the growth of agricultural crops in the field. Circulars, Leaflets and Bulletins were prepared for the dissemination of the information gained as the result of these investigations, and the opening of Agricultural Experiment Stations made it possible for the work to expand in many directions.

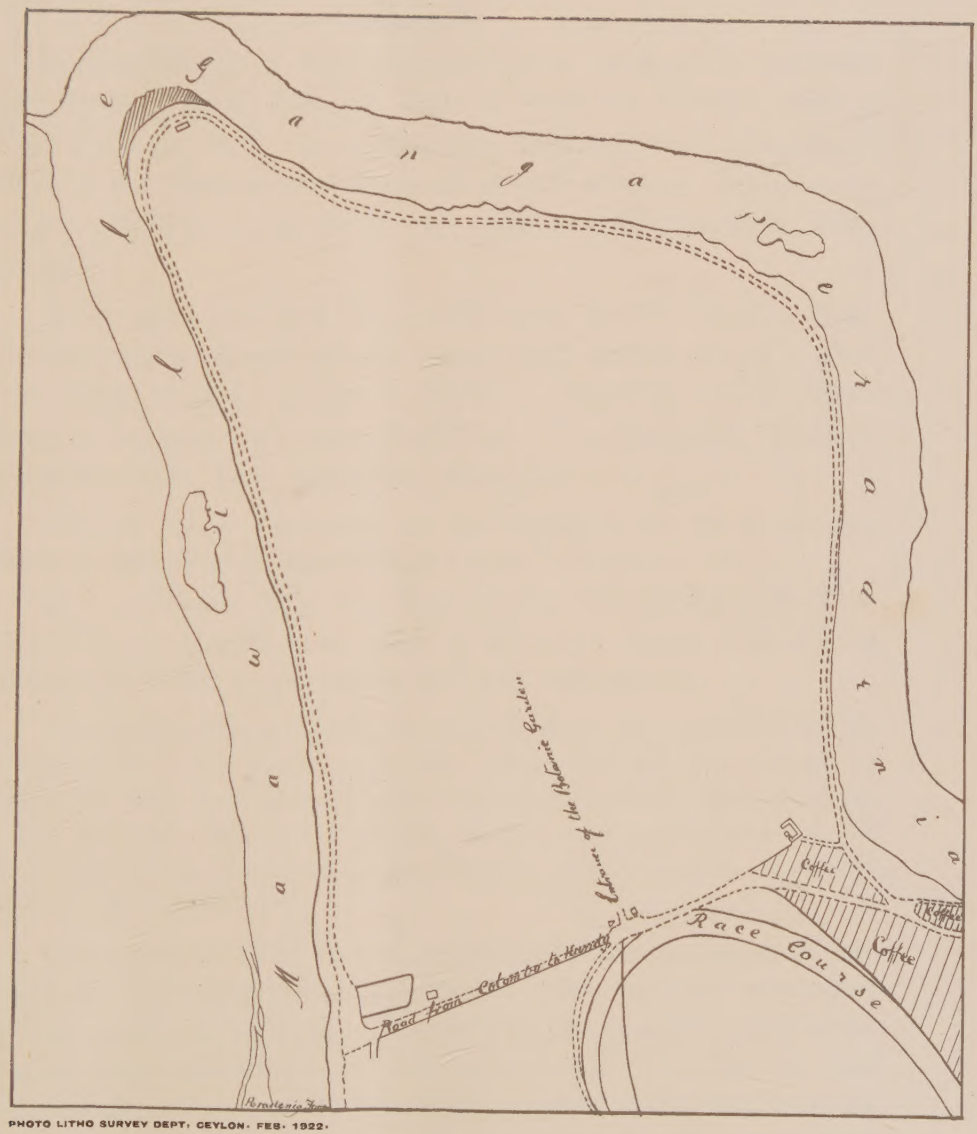
The Agricultural Society played an important part in the dissemination of agricultural knowledge and assisted the formation, out of the Botanical Department, of a Department of Agriculture designed in time to meet the various requirements of all branches of agriculture.

With the formation of the Department of Agriculture a more detailed study of the local economic crops was begun and this work with coconuts, tobacco and other crops would have greatly progressed but for the Great War. Work has recently been begun on Paddy on an extended scale and provision is being made for further agricultural investigation and education through Divisional Agricultural Officers.

The evolution of Peradeniya has been designed to meet the requirements of the Colony. The proper provision of adequately equipped laboratories will facilitate work in the future, especially in those branches of science applied to agriculture. Facilities for post-graduate work will also be provided.

For the Centenary of Peradeniya it had been proposed to arrange for special celebrations and an Agricultural Conference for the Eastern units of the Empire. Finances have not allowed of such proposals being carried out.

We, however, have the opportunity of welcoming His Royal Highness the PRINCE OF WALES to the Royal Botanic Gardens for the purpose of planting a tree in commemoration of his visit to Ceylon. We offer to HIS ROYAL HIGHNESS a hearty and loyal welcome.



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ROYAL BOTANIC GARDENS, PERADENIYA, ABOUT 1828.

THE ROYAL BOTANIC GARDENS, PERADENIYA.

HISTORY.

Investigations of the available data relating to Botanic Gardens in Ceylon indicate that no Botanic Garden existed before the year 1810. It is possible, however, that a thorough search of the Government Archives might produce data not at present available, and show that earlier establishments were created.

It has been recorded that in 1810 SIR JOSEPH BANKS, then President of the Royal Society, suggested and drew up a plan for a proper Botanic Garden in Ceylon. The site was in Slave Island in Colombo and was called Kew. The COLOMBO JOURNAL of January 30th, 1833, however, states that

"The late LORD LIVERPOOL, on the suggestion of SIR ALEXANDER JOHNSTON, established a Royal Botanic Garden in Ceylon in 1811."

It is probable that the first Garden was established after the arrival on August 11th, 1812, of WILLIAM KERR—the official notification of his appointment being as follows :—

" His Majesty having signified his pleasure that a Royal Botanic Garden be established in the Island of Ceylon, His Majesty has been pleased to appoint MR. WM. KERR to be Resident Superintendent and Chief Gardener of His Majesty's said Royal Botanic Garden as communicated in the EARL OF LIVERPOOL'S letter to the RT. HON'BLE LIEUT.-GENERAL MAITLAND dated the 5th of June, 1810."

KERR died in 1814 and the administration accounts of his estate are in the Government Archives. He is there described as WM. KERR of Caltura. ALEXANDER MOON succeeded in the post of Superintendent and arrived in 1817. A Garden was established at Caltura but no official records of its establishment have been found. The CEYLON ALMANAC for 1819 includes under the staff of the Royal Botanic Gardens a clerk at Caltura and a clerk at Colombo, and it has been suggested that the Caltura Garden was supplementary to the Garden at Colombo and was opened for the reception of economic plants which could be cultivated there on a larger scale than was possible at Slave Island. The transfer of exotics from Caltura to Peradeniya

is indicated in the letter of December 27th, 1821, from the Deputy Secretary to Government.

The reasons which prompted the removal of the Botanic Garden to Peradeniya are more or less a matter of conjecture. The land at Slave Island was considered by SIR EDWARD BARNES, then Lieut.-Governor, to be unsuitable for a Botanic Garden, but it is possible that he may have been persuaded to this opinion by his desire to see the cultivation of coffee spread in the Colony.

Records show that in November, 1821, MOON was instructed "to select a proper spot near Kandy for a Botanical Garden," and the Board of Commissioners for the affairs of Kandyan Provinces was directed to afford him every facility (November 24th, 1821). On December 11th of the same year, MOON sent in a report recommending Peradeniya as a site for the Garden, and this proposal was sanctioned by letter of December 27th, 1821.

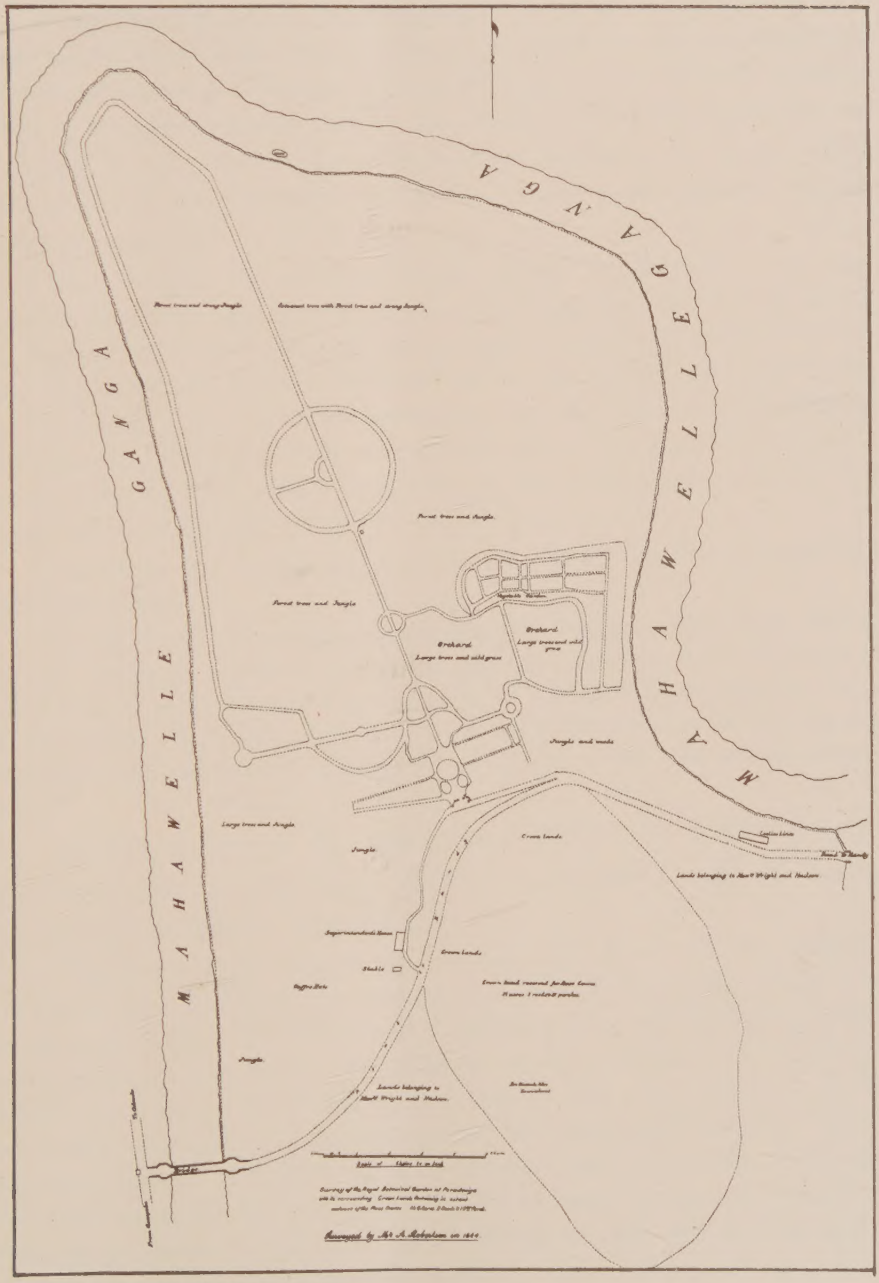
MOON's report, a copy of which is in the Kandy Archives, is as follows :—

"I have the honour to report my having explored the neighbourhood in every direction, and I am of opinion that the site of the late Kandian King's Garden at Peradenia is better adapted than any other place for the proposed Botanic Establishment, particularly as CAPTAIN DAWSON of the Royal Engineers has had the goodness to ascertain that a fine stream of running water may be conveyed over the greatest portion of the arable land, the soil of which is a fat tenacious earth slightly mixed on the surface with vegetable mould, the hills are composed of gravelly Kabooc, which will also be found useful in the covering of walks as well as suitable to the nature of some plants ; and limestone is also to be had at a short distance from the Garden.

There are already a number of fruit and Forest Trees, common to the Island, dispersed all over the grounds, which will afford immediate shade and shelter to the more tender Exotic and Indigenous Plants on their introduction, and it is sufficiently spacious to admit of an extended Botanical arrangement, including Experimental Horticulture in general."

The remainder of the report deals with the schedule of the fixed establishment and the probable labour available.

The letter from LUSIGNAN the Deputy Secretary to Government accepting the above proposal, dated December 27th, 1821,



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ROYAL BOTANIC GARDENS, PERADENIYA, 1844.

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is addressed to the Superintendent, Botanical Garden, Colombo, and is as follows :—

"I have had the honour of submitting to the Lieutenant-Governor your letter of the 11th instant with its enclosure, and I am now to signify the Lieutenant-Governor's sanction of the Principal Royal Botanic Garden being at Peradenia, which Garden the Board of Commissioners will be instructed to make over to you and to afford you every aid in procuring extra workmen when particularly required, either those attached to the garden or otherwise.

I now enclose the schedule of the Fixed Establishment of your Department for the year 1822, framed on that suggested by yourself, and I am desired to request you will put yourself in communication with the Collector of Caltura, whom I shall address on the subject, and arrange for delivering over to his charge the garden there, at the same time considering what portion thereof it may be necessary to sell, as the Garden at Peradenia will hereafter be the principal receptacle of that description of Exotics for which the Establishment at Caltura was intended.

I shall hereafter inform you to whom the Garden in Slave Island is to be delivered over.

The Board of Commissioners will consider in concurrence with you of the best means of supplying you with a place of residence in the precincts of the Gardens, and will frame an estimate of the expense of constructing a Bungalow for you on the principle of that lately fitted up for the Lieutenant-Governor, lath and plaster covered with olas, and which will last for several years."

Another letter of the same date written by LUSIGNAN, as Secretary for the Kandyan Provinces, to the Board of Commissioners in Kandy, requests :—

"That the most efficient aid be afforded to MR. MOON towards establishing the principal Royal Botanic Garden in Ceylon at Peradenia, which is to be given up to him. MR. MOON mentions there being some private property in the angles of the Garden, for which it would be advisable to exchange other Crown Lands, on which subject enquiry and report must be made. In respect to a residence for MR. MOON, the Lieutenant-Governor thinks that two rooms of 30 feet 4 inches in length, with a verandah round and two detached bedrooms with a kitchen, two servants' rooms and temporary stabling may easily be built at no great expense and will last as long as the uprights are not destroyed by white ants."

At a meeting of the Board of Commissioners held on January 25th, 1822, the Revenue Commissioner submitted the results of his enquiries on the subject of certain private gardens in the angles of the Royal Botanic Garden at Peradeniya in the

following report :—

"There are four Gardens all situated on the East side, viz.,

1st.—Agala Kotuwewatte, Extent 1 Ammonam, 2 Pelah of Paddy containing 20 cocoanut, 13 Jak, 34 Kekuna, and some coffee and fruit trees This Garden belongs to the Dalada Maligawa and supplies it annually with 24 measures of oil which can hereafter be furnished by Government. It is in charge of two Gamaheya, who have Paddy Fields for their service. It has no inhabitants.

2nd.—Kandawatte, Extent 1 Ammonam, 2 Pelah of Paddy, containing 15 cocoanut, 4 Jak, and 14 Kekuna trees. This Garden belongs to Natha Dewale, and is possessed and inhabitated by Kandawatte Appu, who enjoys the produce thereof and performs the service of Umbrella bearer at the Festival of Maha Parahara as well as of supplying milk to the Dewale. In exchange for this Garden it is proposed to give the Government Garden Atuagawatte at Wellatte (adjoining Peradenia) in extent 1 Pelah, containing 27 cocoanut, 6 Jak, 2 Kekuna, 11 Kittul, and 75 Coffee trees, but as this Garden usually furnished the Dalada Maligawa with 30 cocoanuts annually, the same in future can be supplied by Government from Peradenia.

3rd.—Udowatte and
4th—Karandagahawatte } These belong to the Ukkurale Vidan of Peradenia. The extent of the former is 12 Kornies of Paddy and contains 1 Cocoanut, 4 Jak, and 4 Kekuna trees. The extent of the latter is 13 Kornies and contains 20 Kekuna and 150 Coffee trees. In exchange for these, the Government Garden Atuagawawatte in Peradenia may be given. It is 3 Pelah in extent and contains 30 Cocoanut, 5 Jak, 1 Kittul and 150 Coffee trees.

"In order to insure the due collection of the Revenue from the Gardens about to be given up to MR. MOON, it is suggested in communication with that gentleman that the collection be made by him and that he should be at liberty to dispose of as much of the fruit as he could, the rest being sent for to be sold in Kandy by the Revenue Commissioner.

The extent of Peradenia is 75 Ammonams, and contains 800 Cocoanut, 244 Jak, 13 Del, 33 Kittul, 740 Coffee, 77 Pepper Vines and 178 Cardamom plants, besides some Areka and other fruit trees.

The Revenue Commissioner would also remark that, as from the great extent of these Gardens it is possible MR. MOON will not require the whole for his purpose, their value to Government must be increased by appropriating any such part to the planting of coffee.

The parties concerned in the exchange of these Gardens are well satisfied with the arrangement, and the 1st Adikar, Principal of the Maligawa, has given his consent to the proposal respecting Agalakotuawatte.

With respect to the House directed to be built for the residence of MR. MOON, the Revenue Commissioner informs the Board, that there is in

PHOTO LITHO SURVEY DEPT. CEYLON. FEB. 1922.

ROYAL BOTANIC GARDENS, PERADENIYA, 1860.

Peradenia, the ruins of an ancient Palace not far distant from the spot that will probably be selected for MR. MOON's House ; and as this is to be a permanent Establishment, it appears advisable that Government should avail itself of the stones to be found on these ruins, for building the house, or pillars only, the intermediate spaces to be built up with a wall of single brick. The expense would be compensated by the durability of such a building.

The Board concurs in opinion with respect to the exchanges and other arrangements submitted by the Revenue Commissioner for acquiring possession of the private gardens situated in the angles of the Royal Garden at Peradenia, it appearing that they will be satisfactory to all the parties interested."

A letter from LUSIGNAN as Secretary, Kandyan Provinces, dated Colombo 16th February, 1822, informed the Board of Commissioners for Kandyan affairs that the measures proposed for acquiring the pieces of land in the vicinity of Peradeniya were sanctioned, and that MOON would be instructed :—

"To attend particularly to realizing as much Revenue as possible from the Garden and to apply as much of it as possibly can be applied to the growth of Coffee. For this purpose, however, and also for the other duties of the Garden, it will be necessary you should consider and report how he is to be furnished with labourers at a cheap rate."

A letter to MOON from LUSIGNAN as Secretary for the Kandyan Provinces of the same date, which is in the Peradeniya records, transmits copies of the above quoted correspondence and states :—

"I am now to signify the Governor's particular wish that you should give your attention to the objects of realising as much Revenue from the Garden at Peradenia and accounting for the same to the Revenue Commissioner and also to the growth of Coffee which His Excellency has particularly at heart to see increased throughout the Island."

The available evidence appears to show therefore that the Botanic Garden at Peradeniya was instituted in February, 1822. Its site is nearly 147 acres in extent and had previously been one of the Gardens of the late Kandyan King. It contained coconuts, jak, del, kittul, coffee, pepper, cardamoms, areca, fruit trees and plants which were common to the Island. There is evidence to show that the transfer of exotics from the Garden at Caltura was made by successive Superintendents at least up to 1843.

The first plan of the Garden is now in the Library of the Royal Horticultural Society in London, where it is bound up in

a folio volume with paintings of Ceylon plants, etc. It is not dated but the drawings bear the date 1828 when JAMES MACRAE was Superintendent. This plan shows that the Garden had not been laid out to any extent at the time it was drawn.

The first official plan of the Royal Botanic Gardens at Peradeniya appears to have been made in 1843 and shows the progress that had been made in the development of the Garden up to that date. In the early years it is evident that little progress was made in the work of laying out the Garden, attention during the first twenty years being confined to the growing of coffee and the cultivation of vegetables.

In 1844, GEORGE GARDNER, a botanist of established reputation, was appointed and it was from that date that work of development began in earnest.

LANDSCAPE DEVELOPMENT AND ACCLIMATISATION.

Attention was first given to the construction of roads and paths and GARDNER reported in 1845 that the "Central walk (now Main Central drive) was straightened and continued down as far as the river." He also emphasized the difficulties caused by the want of an efficient water-supply, "one-third of the labour being employed on carrying water from the river." This same difficulty, though not so acute since the pipe line for conducting water from Hantane Hill-side was laid in 1874, has had to be reckoned with up to the present day.

Owing to the death of GARDNER in 1849, the work of laying-out the Garden received a temporary check, but in the next thirty years the Gardens, under the superintendence of THWAITES, attained considerable fame, due largely to his reputation for botanical research. During the latter part of this period the general outline of the present plan of the Gardens, especially as regards the main roads and paths, was carefully drawn up and improvement of this plan and the addition of new features has since steadily progressed. In 1869 the road "completing a circuit of the Gardens" was reported as finished. This, however, referred to the River-drive only, and did not include the

Plate 1. OLD *FICUS ELASTICA* AVENUE.

Plate 2. "THE RUINS"

South-drive extending from the Lake to the former single spanned Satinwood bridge, which was replaced in 1906 by an iron and concrete bridge of 3 spans. The opening of the South Garden, though contemplated by THWAITES, was left for TRIMEN to carry out, and he at once took it in hand on his arrival early in 1880. The circuit of the Gardens was not really complete until the South-drive, commencing at the Lake and finishing in a loop round the palm crescent at the south end of the Gardens, was finished in 1882.

The Gardens are now well served with roads and paths, and, in contrast to many other botanic gardens, all the roads are open to carriages and motor cars.

Up to about 1850 little was, or probably could be, attempted in the way of landscape development, beyond the opening up of road tracks and paths and the maintenance of certain cleared portions. Funds were limited and means of communication poor. THWAITES on several occasions referred to the jungle condition of portions of the grounds and the predominance of Lantana and other scrub. Nevertheless the work of introducing and acclimatising ornamental and useful plants steadily advanced. Among the more important introductions in THWAITES' time may be mentioned the Giant Bamboo *(Dendrocalamus giganteus)* of Burma, in 1858; *Amherstia nobilis*, the "Queen of flowering trees," also of Burma, in 1860; Coco-de mer, or Double Coconut *(Lodoicea sechellarum)* of Seychelles, in 1850; the Rain-tree or Guango *(Pithecolobium Saman)* of South America, in 1853; *Cassia nodosa*, 1850; the Upas Tree of Java *(Antiaris toxicaria)* now considered to be the same as *A. innoxia* of Ceylon, in 1860; and the beautiful flowering trees, *Saraca declinata* of Sumatra and *Brownea grandiceps* of Brazil, in 1870.

One of the first attempts at ornamental gardening was the laying out, in 1861, of the Fernery, by WILLIAM CAMERON, the first Curator of the Gardens. The Fernery design was on very artistic lines, as may be seen from the old portion still intact. It was considerably extended in 1898, a number of new and wider paths being then made, and a vista opened through the centre affording a view from the Main Central-drive to the

Palmyrah avenue and beyond. It was again slightly extended in 1916.

The large oval palm group inside the entrance was first begun about 1839 by J. G. LEAR. This at first consisted of three portions, viz., one circular group in the centre and one oval bed at each corner, just inside the gates. In 1867, these were thrown into one group and extended at both ends, forming a large oval, much the same as at present. The palms in the young state must have formed an attractive feature, but it could hardly have been foreseen that many of them would have grown to such a height as to block out completely the view of what was destined to become the Central-drive. In 1880, however, TRIMEN in his first report noted, that the beauty of this group was impaired by the height to which the palms had grown. In 1896 a number of low-growing bushy palms were planted among the tall-growing, bare-stemmed kinds. It was decided in 1920, consequent upon the formation of the new Palmetum in the South Garden, to replace this group, as soon as funds allow, with an ornamental design set in a lawn, with a fountain in the centre. The smaller round group of palms in the centre of the Great Circle was planted about 1860, and the palm crescent in the South Garden in 1882.

A striking landmark for many years was the remarkable double row of *Ficus elastica* which bordered the public road on the left side, from the Colombo direction, at the Entrance. These were planted in 1833 by WATSON, and their enormous buttressed roots, spreading over the surface of the ground, were for many years a source of admiration to visitors. The trees began to crumble away about 1905, partly because of their being too closely planted. In 1912-13, they were cut down and removed as they had become dangerous. A new single row of the same species was planted on the same site in 1914, after much preparation of the ground. These have made rapid growth, being now about 30 feet in height.

Another remarkable feature of the landscape, familiar up to about 1908, was "The Ruins," which consisted of an irregular row of trees along the ridge stretching from the Entrance to near the Lake. These had become completely covered with the giant climber *Thunbergia grandiflora*, which ultimately

PHOTO LITHO SURVEY DEPT. CEYLON. FEB. 1922.

ROYAL BOTANIC GARDENS, PERADENIYA, 1879.

killed them. Their tall trunks, covered with a mantle of the deep green creeper, stood for a number of years and presented the appearance of ruins.

The ridge just referred to, outside of which was a deep ditch, at one time doubtless formed the recognised boundary of the Gardens and extended from the river at the south-east corner, on the north side of the present cooly lines, to the bank of the river on the opposite side, following the line of the former Colombo-Kandy road. The latter joined a ferry south of the present lake, and its track, passing through the site of the present Curator's bungalow, could be seen until a few years ago.

Visitors to Peradeniya are struck particularly by the beautiful lawns, a comparatively rare feature in gardens of the tropics. These lawns are the envy of other tropical gardens, but only persons who know can realise the difficulty of making and maintaining lawns in a climate where members of the vegetable kingdom vie with each other with such vigour for possession of the soil, and where animal pests, especially of the subterranean and creeping class, are so rampant. The Great Lawn, which is so beautifully undulating and now covers some seven acres, was first given the character of a lawn about 1885. About 1844 it was under forest and jungle; by 1860 it was considerably cleared, and a portion was reserved as a paddock for grazing cattle up to about 1878. In 1895 it was still further improved by levelling the ground, removing ugly trees, termite hills, tree-stumps, coarse weeds, etc. In 1919 plants of five selected trees (*Poinciana regia*, *Ficus Benjamina*, *Mesua ferrea*, *Pithecolobium Saman*, and *Enterolobium cyclocarpum*) were planted far apart to form isolated specimen trees and afford in time a more park-like effect.

The "Great Circle" lawn, nearly four acres in extent, was made before 1844. In the latter year it is shewn as a circle with a road or path round it, and the central-road straight through. The circular palm group in the centre did not then exist, but a semi-circular bed is shewn in the centre on the west side of the road, with a path round it. A straight path connected this with the outer circular road, opposite the present West-drive, which did not then exist. The Great-circle was

much improved after the Rubber Exhibition in 1907. The lower portions were raised and a more uniform level effected throughout, the necessary earth being obtained by the removal of a ridge between the lawn and THWAITES Memorial.

The formation of the Arboretum, now covering approximately one-third of the area of the Gardens, was contemplated by GARDNER in 1844, but the land remained largely in a state of "strong forest and jungle" until about 1860, when portions in sections B. D. and E. were under chena. About 1881 certain areas were defined for the planting of prominent natural orders, but the existing vegetation was hopelessly overcrowded to allow of much planting, and consisted largely of useless old or dead trees of "Sapu" *(Michelia Champaca)*, "Jak" *(Artocarpus integrifolia)*, "Wanasapu" *(Cananga odorata,)* and several species of *Ficus*. In 1896-98, some 750 of the most ungainly specimens were thinned out, much undergrowth removed, a large number of tall tree-stumps uprooted, and giant termite-hills levelled down. Much clearance has again been effected in the last six years, and special attention given to the introduction and planting of species in systematic arrangement. The Arboretum now contains some 48 natural orders.

A supplementary arboretum was formed in the South Garden when this was cleared and opened in 1880 81, but the area has been found to be inadequate, and a beginning was made in 1914 to transfer the representatives of the different orders to their proper places in the larger and original arboretum. The higher portion of the hill in the South Garden has, however, as originally planned, been reserved for Coniferæ, the collection of which was considerably extended in 1921.

This transference of plants to the large Arboretum afforded an opportunity for forming an enlarged Palmetum. This was begun in 1914. The area now devoted to a systematic arrangement of palms stretches from the Lake along the hill-side, joining the earlier planted Palm Crescent. This collection of palms includes already some 138 species, representatives of 68 genera, and should in time be the finest collection of palms in the tropics.

The Herbaceous Ground, behind the Talipot avenue, is apparently what THWAITES referred to in 1877 as a "botanical arrangement of plants" for which a piece of ground was then

Plate 3. THE ENTRANCE.

Plate 4. THE MAIN CENTRAL DRIVE.

being cleared. In that case this date may be taken as the commencement of this interesting collection, which is of special value to students of botany. It was completed in 1881 by TRIMEN.

The small lake, formerly a "tank" or pond, was brought to its present condition in 1896-7, when the banks were sloped down to the water's edge, a path being made along the northern bank and a deep cutting round a clump of trees on the south-west side. By the latter operation the island was formed and sufficient earth obtained to fill the lake from a depth of about 10 feet deep in the centre to a uniform depth of about 2½ feet. Subsequently the Giant water-lily *(Victoria regia)* and the Papyrus *(Cyperus Papyrus)* were introduced and established here in 1895 and 1897 respectively.

The Nurseries have always been one of the important branches of the work of the Gardens. These have received special attention in recent years and are now divided into two sections, namely the "Ornamental Nursery," which is devoted mainly to ornamental trees, shrubs, climbers, etc., and the "Economic Nursery" which is confined to the raising of stocks of plants of economic value, such as rubber, fibres, shade-trees, fruit-trees, etc. Both nurseries cover in all some 3 acres of ground, with an overflow on the east river-bank.

The Economic Nursery was first begun in 1898 for "Experiment Plots," preceding the Experiment Station established in 1902. The present Ornamental Nursery was begun in 1886, and extended later from time to time, chiefly in 1916. Previous to this the nursery occupied a portion of the ground now under the Palmyrah avenue. The present site, below the Garden offices, was at the commencement of the Gardens used for raising coffee plants, etc.

It is estimated that the living collections in the Gardens include over 3,000 species. The most conspicuous and handsome are the bamboos, palms and trees. Amongst the bamboos may be mentioned the Giant Bamboo of Burma *(Dendrocalamus giganteus)*; the Building Bamboo of Java *(Gigantochloa aspera)*, and the Yellow or common Bamboo *(Bambusa vulgaris)*.

In 1907, some 16 clumps of the Giant Bamboo were planted by the Gardens at distances of 50 yards along the opposite bank

of the river, belonging to the Experiment Station, facing the Gardens. These are now beginning to form good specimens and to justify the expectations formed of their striking effect on the landscape from the Garden side.

Of the palms, the Talipot of Ceylon and South India *(Corypha umbraculifera)*, sometimes referred to as the Chieftain of the Palm tribe, is the largest and most majestic. Its creamy white inflorescence at its full development is about 25 feet in height, above the stem, which is usually about 70 to 80 feet high. The "Double Coconut" or Coco-de-mer *(Lodoicea sechellarum)* of Seychelles, is one of the most remarkable of palms. A fine male specimen is growing at Peradeniya, whilst a female palm now heavily laden with fruit, the oldest of which are now 10 years old, is growing at Heneratgoda.

Other striking palms are the Royal Palm *(Oreodoxa regia)* and its close ally *Oreodoxa oleracea*, both of Tropical America; also the Coquita Palm of Chili *(Jubaea spectabilis)*, *Raphia pedunculata* of Madagascar, *Arenga saccharifera* (Sugar Palm) of Malaya, the Toddy Palm of Ceylon *(Carvota urens)*, with its handsome fern-like leaves, and the various fan-leaved palms, *Livistona*, *Sabal*, *Thrinax*, etc.

Among the more remarkable trees may be mentioned *Ficus altissima*, a Banyan of which a good specimen is on the west river-drive, near the laboratory. Aerial roots developed from the branches have on reaching the ground formed independent stems on both sides of the road. The Cannon-ball Tree *(Couroupita guianensis)* introduced from Tropical America in 1881, is a very remarkable tree both on account of the peculiar flowers, produced all along the stem down almost to the ground, and of the large, globular, brown fruits. A fine specimen of the Brazil-nut, (*Bertholletia excelsa*) introduced in 1880, is also worthy of mention.

Of beautiful flowering trees, the *Amherstia nobilis*, of Burma, is doubtless the finest. Other beautiful trees are *Lagerstroemia Flos-regina* (pink variety) the "Pride-of-Ceylon," *Cassia Fistula*, or Indian Laburnum, indigenous to Ceylon and India; *Brownea grandiceps*, of Venezuela; *Cassia nodosa*, of Eastern Bengal and Malaya; *Poinciana regia*, "Flamboyant," of Madagascar; *Tabebuia rosea*, of the West Indies, *Spathodea campanulata*, of Tropical Africa, and *Jacaranda ovalifolia*, of Brazil.

At the commencement of the Gardens, the Colombo-Kandy road passed the entrance at right angles in a straight line from the Foreman's present quarters to the ferry south of the lake. When the ferry was abolished in 1833 and the former Satinwood bridge opened, the consequent deviation in the public road left only one approach to the Entrance, namely from the Kandy side. In the 1860 plan a path is shewn branching off the public road opposite the present Superintendent's bungalow, passing in front of the Chief Clerk's quarters and close to the former Ficus row, to the entrance.

In 1876, THWAITES recorded that a path had been made "for the convenience of visitors coming on foot from the station, (then Peradeniya Junction), through land outside the gardens, bringing into view the peculiar roots of the *Ficus elastica* trees." This apparently was either a reopening of the former path or a deviation of it. This was abolished about 1880, and two short approach roads were made to connect the entrance with the public road, as at present. Both approaches and vicinity were improved in 1894-96, and a gravelled space for carriages made outside the gates. On the triangular space thus formed outside the entrance was a Hindu temple, close to the present Mahogany and Star-apple trees.

In the skeleton plan of the gardens dated about 1828, only one road is shown and that follows the river bank, joining the Colombo-Kandy road, as it then was, at the south-east and south-west angles, the latter junction being at the ferry already referred to, a little south of the lake. This road, however, was probably only a track and placed, in parts, lower down on the bank than the present drive, which was not opened until 1869.

The "Central walk" was completed in 1845, and has since become the Main Central-drive. In 1895, this was considerably improved by filling a dip in the centre, and widening the drive by about 3 feet. The latter was rendered possible by discarding the turf verges, removing the trees closest to the drive, and setting the borders of shrubs and ornamental plants further back. These borders, which are now a feature of the Gardens, being in all some 1,400 yards in length, were then replanted

throughout with a considerable variety of plants, finishing in front with a line of a pure white-flowered Amaryllid. The drive is edged on both sides with *Malpighia coccigera*, a good substitute for box-edgings in the tropics.

In 1905, the Palmyrah-avenue was made into a drive, and the East-drive, close by, abolished. In 1899, the northern end of the main Central-drive, turning at right angles and passing the Clove grove, was widened and properly made, being joined to the West river-drive by two arms forming a triangle. During 1914-1915 the Central-drive was carried straight through, joining the river-drive nearly opposite the ferry-path for the Experiment Station. The junction of the Lake-road at the Entrance was altered to a graduated curve in 1906, and at the lake itself into a triangle in 1920. The Jacaranda-drive was similarly joined to the West river-drive in 1905, and the latter, below the GARDNER Memorial, was lowered and widened in the same year, being afterwards considerably widened at the corner above the Lake, in 1915.

In 1907-1908 the Museum-road, through a portion of the Great-Lawn, was made. The frontage of the Museum required a considerable amount of filling, owing to the low and sloping ground. The necessary earth for this was obtained by reducing the gradient of the Bat-drive, making a double cutting near the THWAITES' Memorial. The Bat-drive was remade and named TRIMEN drive in 1915.

The first avenue in the Gardens, exclusive of the former double row of *Ficus elastica* at the entrance, already mentioned, was that of the Royal Palm (*Oreodoxa regia*), planted about 1855 and replaced in 1905 by the present and better avenue of Cabbage Palms (*Oreodoxa oleracea*). The next was the Talipot Palm avenue (1880), some of the palms in which flowered in 1918 and fruited and died the following year. Then, in order of sequence, the Palmyrah palm (*Borassus flabellifer*), sown *in situ* in 1887 on the site of what was formerly a nursery and vegetable garden; the new Royal Palm avenue along the northern end of the Main Central-drive (1898); the *Brownea grandiceps* avenue (1900), interplanted with *Cassia multijuja* in 1904; the avenue of Coco-de-mer (*Lodoicea sechellarum*) along Monument-road

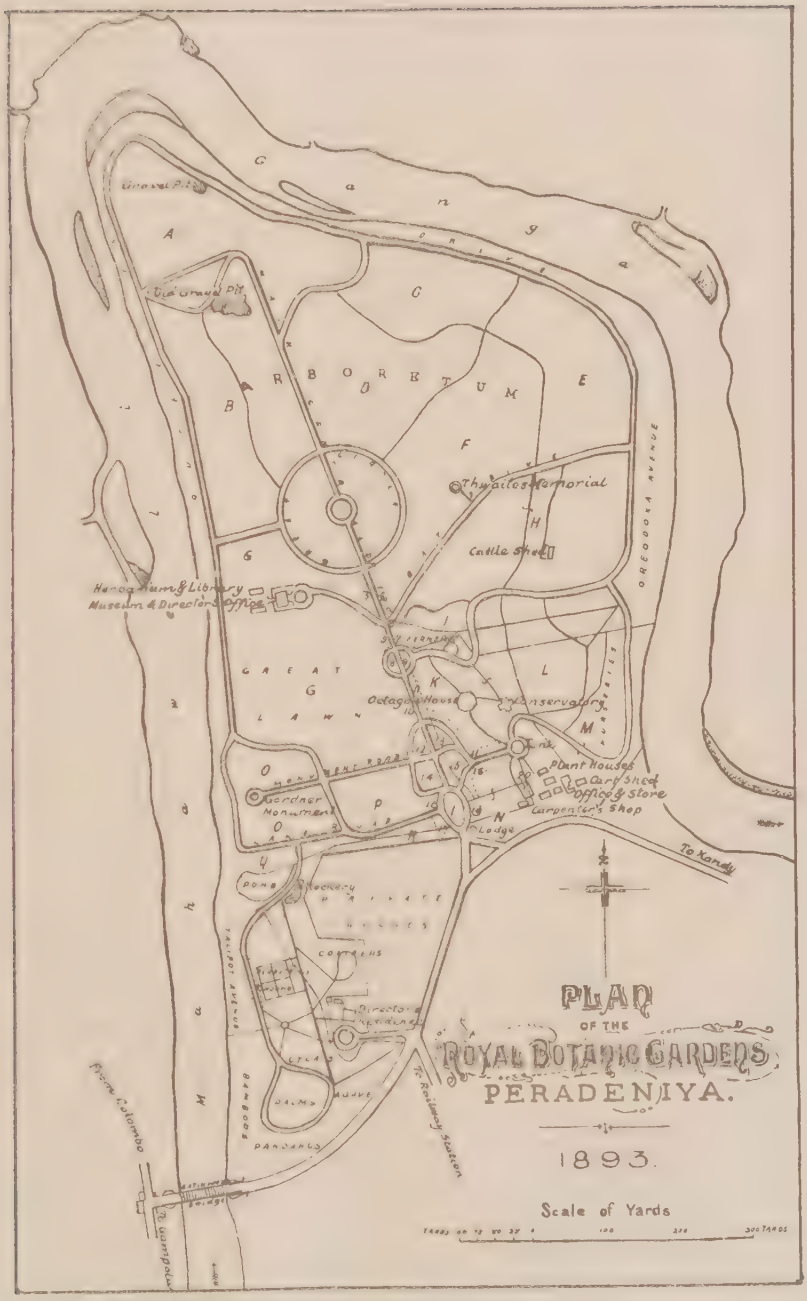

PHOTO LITHO SURVEY DEPT. CEYLON. FEB. 1922.

ROYAL BOTANIC GARDENS, PERADENIYA, 1893.

in 1905, and the avenue of Kauri Pine *(Agathis robusta)*, planted in 1918.

The shady nutmeg-walk in the Spice Collection is a favoured spot with visitors. The large trees *(Myristica fragrans)* were planted about 1840 and are exceptionally fine specimens, some of them being about 75 feet in height. The spice collection was formed in 1896-98, and considerably extended in 1914. The small plantation of Cloves in the Arboretum was planted in 1874.

The row of the very remarkable Cannon-ball tree *(Couroupita guianensis)* by the nursery was planted in 1881; the row of the beautiful *Cassia nodosa* along the former east-drive in 1899; the *Amherstia nobilis* row, along the Kandy approach to the entrance, in 1904; the Talipot palms along the Talipot-drive in 1907 (planted with 6-years old seedlings); the beautiful *Jacaranda ovalifolia* along Jacaranda-drive in 1914; and the new *Ficus elastica* row, already mentioned, by the entrance, in 1914.

The most striking and attractive modern feature of the Gardens is the floricultural section, including the Octagon-house (built in 1894 and improved in 1904), the Orchid-house (built in 1888 and improved in 1910), the Flower-garden (begun in 1896), the Pergola, and the collections of Roses, Hibiscus, Crotons, etc. In 1895, a number of the modern fine-flowering varieties of Cannas, probably the first in Ceylon, were introduced and planted here for the first time.

Up to 1894, this area, covering some seven acres, was of the nature of a forest, including a number of young trees and climbers growing on tall trees. The more rare or interesting of these were transplanted to their proper positions in other parts of the garden. Three trees of *Pimenta aoris*, about 25 feet in height, were successfully transplanted to the Spice collection, which was then begun. The Flower-garden at Peradeniya is apparently without a rival in the tropics. By a system of massing, grouping and blending, ornamental foliage-and flowering plants, such as Caladiums, Coleus, Alternanthera, Cannas, Pentas, Poinsettia, Mussaenda, Salvias, Plumbago, etc., make here a bright display practically throughout the year.

Vistas add greatly to the interest and charm of a garden. Of these there are several in the Gardens, the principal being Bridge-view, looking up the river from West river-drive in the Arboretum, showing the Peradeniya bridge on the Colombo-Kandy road, the railway bridge beyond, and tea estates in the distance. The Hantane-Gannoruwa-vista, opened in 1898, diagonally across the Arboretum ; the East-vista from the *Oreodoxa regia* avenue across the Arboretum to the Experiment Station and Primrose Hill, begun in 1900 and completed in 1915; and the Fernery vista, opened in 1898. Near the latter a pretty view is obtained from the Central-drive across the Great-lawn, and on the opposite side across the Flower garden, both effected in 1894-98 by making a break in the borders, of the Main Central-drive.

There are two memorials in the Gardens. One was erected in 1855 to commemorate the work of GARDNER, and furnished with a brass tablet in 1883. The THWAITES' Memorial with a brass tablet was erected in 1885. There is also a brass memorial tablet to TRIMEN, presented by the Planters' Association, placed in the Herbarium and Museum building. The two former serve the useful purpose of shelters to visitors, school parties, etc., to the Gardens. It had been intended to erect a suitable Memorial to TRIMEN in the Great Circle during the Centenary year of 1922, but the general depression in Government finances has made the postponement of this proposal inevitable.

Memorial trees have been planted around the Great Circle, in commemoration of visits of Royal personages and of interesting events of Imperial importance. The trees growing at present are *Ficus religiosa*, Bo Tree, planted by the late KING EDWARD in 1875 ; *Couroupita guianensis*, Cannon-ball Tree, planted by their Majesties KING GEORGE and QUEEN MARY in 1901 ; *Mesua ferrea*, Na-gaha or Ceylon Iron-wood, planted by the late CZAR of Russia in 1891 ; and *Poinciana regia*, Flamboyant Tree, planted by PRINCESS HENRY of Prussia in 1899.

A plant of *Treculia africana*, African Breadfruit, was planted by MRS. J. B. CARRUTHERS, about 50 yards back from the Great

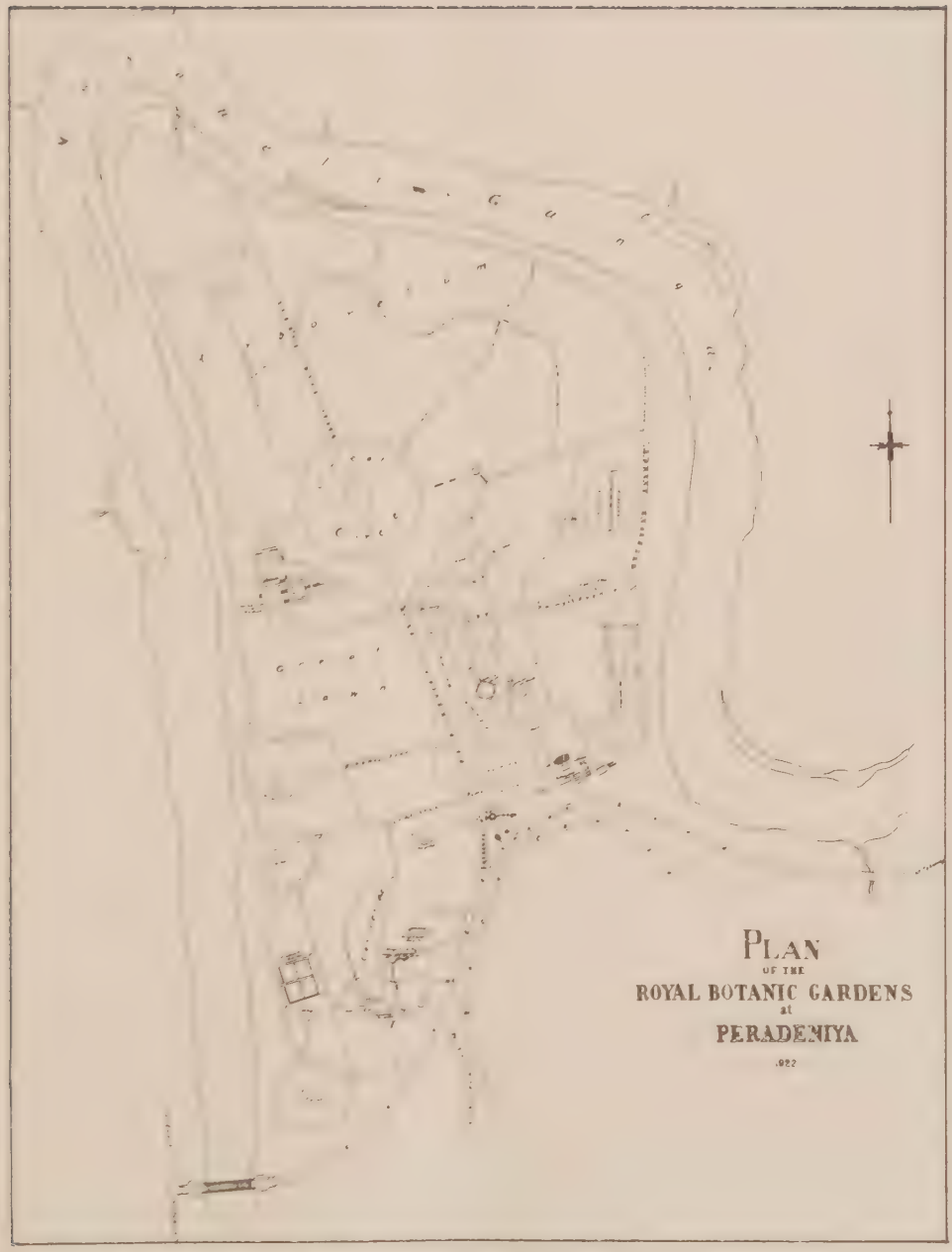

PHOTO LITHO SURVEY DEPT. CEYLON. FEB. 1922.

ROYAL BOTANIC GARDENS, PERADENIYA, 1922.

Circle, in its natural order, in 1902, to commemorate KING EDWARD'S Coronation, a plant of *Cassia grandis* by MRS. J. C. WILLIS, in the south-east corner round the Circle, for KING GEORGE'S Coronation in 1911, and a plant of the beautiful *Tabebuia rosea* by MRS. F. A. STOCKDALE, in July 1919, to commemorate Peace and the cessation of the Great War.

In connection with the development of the Gardens, the following events are of interest. The completion of the former Satinwood bridge in 1833, resulted in diverting the public road from the Gardens to its present position. The work of filling up the portion of the new road in the deep hollow near the bridge, on the Kandy side, must have involved the transport of large quantities of earth, much of which was removed from the adjoining South Garden, leaving only the subsoil.

The railway to Kandy was opened in 1867, the nearest station to the Gardens then being Peradeniya, which afterwards became Peradeniya Junction upon the extension of the line to Gampola, etc. The New Peradeniya Station, about half a mile from the garden entrance, was opened in 1889, being intended especially for the convenience of visitors to the Gardens.

The Peradeniya Race-course, opposite the garden frontage and surrounding the Golf links, dates from the early commencement of the Gardens. It was probably first started by the Military, about 1824, and appears to have been long in the charge of the Public Works Department. Later it was transferred to the Kandy Race Club until 1920, when this Club was amalgamated with the Colombo Turf Club.

The ground enclosed by the Race-course, about 36 acres in all, at one time belonged to the Military and is still Crown land. The summit, used for the grand-stand, etc., is still military ground. From the remains of carved stones and pillars discovered here, some of them many feet under the surface, during the conversion of the ground into golf links in 1910-11, this must have been at one time the site of an important palace.

Whilst much of the land in the vicinity of the Gardens was opened up by Government and planted with coffee, the race-course ground appears to have been for the most part left uncultivated. Parts of it were occupied by P.W.D. coolies, and during the cholera outbreak in 1847, camps for Soldiers, etc., were established there. In 1877, J. FERDINANDS, Clerk and Foreman of the Gardens, was allowed to occupy the ground, which he *chenaed*, on payment of an annual rental of Rs. 150. In 1880, some 18 acres facing the gardens and public road were under the control of the Gardens. Previously several small houses and huts had been built here by local settlers. During 1889, steps were taken, apparently on the initiative of neighbouring planters, to maintain the Race-course and grounds in better condition, and on the recommendation of the Director of the Gardens, the New Peradeniya estate (Ceylon Land and Produce Company) was given in 1890 a 10 years lease of the land at a rental of Rs. 10 per acre. This estate, it may be mentioned, was originally begun as a sugar estate, and is still known by that name in both Sinhalese and Tamil. In the year stated, the frontage area was reduced from 18 to 12 acres, and later, in 1893, to 4 acres.

On the expiry of the lease to the New Peradeniya Estate in 1910, the whole of the race-course ground was taken on lease by the then newly formed Kandy Golf Club, and in 1912 it was opened as the Lewis Links in honour of J. P. LEWIS, C.M.G., retired Government Agent, Kandy. When the Golf Club took over the ground it was under tea, interplanted with Dadaps and other shade trees, all of which had to be cut down and removed. In 1895 much of it was under Liberian Coffee, and afterwards under the drug *Croton Tiglium.*

The Peradeniya Rest-house, built in 1901, in the north corner of the race-course ground, was intended mainly for the accommodation of visitors to, and scientific workers in, the Gardens.

Plate 5. THE GREAT LAWN.

Plate 6. THE GREAT CIRCLE.

ESTABLISHMENT OF BRANCH GARDENS.

As the work of Peradeniya developed it became necessary to establish smaller branch gardens in the different climatic zones of the Colony.

Hakgala Garden was established in 1860 as a nursery for Cinchona but the Garden has since been extended so as to afford space for the acclimatisation and trial of trees, shrubs, and plants suitable for the cooler and higher elevations of the Island. Large collections of Acacias, Conifers and Eucalypts have been made in these Gardens, and these collections have been responsible for the spread of a large number of trees which are now common features up-country and are essential for its economic welfare. Extensive nurseries are maintained in these Gardens for the supply of Conifer and Eucalypt plants. The camphor plantation was made in 1895 and areas of the patanas were planted with *Pinus sinensis* in 1885, *Casuarina montana* in 1899, and *Acacia decurrens* and *A. melanoxylon* in 1913. The trial of European and Australian fruits, vegetables and fodder grasses has been carried on for many years, and the trials of ornamental shrubs and of flowers have been of assistance to many interested in floriculture at the higher elevations. The Fernery at Hakgala is both extensive and beautiful, and has been the source of interest to a large number of visitors.

In 1901, a small laboratory was opened for the use of scientific workers, and much work useful to scientific botany and to the botany of Ceylon in particular has been done there.

In 1921, a beginning was made in the establishment of a rockery and with trials with rock plants.

Heneratgoda Garden was opened in 1876 for the accommodation of the then recently introduced rubber plants from South America. The original plantation of *Hevea brasiliensis* is the source of considerable interest to scientific workers and to those interested in the rubber industry. Heneratgoda No. 2 is a tree that is known throughout the rubber-producing world for its yield of 392 lb. dry rubber in 4 years and 9 months, during

1908-13, and its photograph is familiar to the industry. Small plantations of Mangosteen *(Garcinia Mangostana)*, Kola *(Cola acuminata)*, Cinnamon *(Cinnamomum zeylanicum)* have been made. Some fine specimens of tropical trees are also to be seen in these Gardens, and a feature of considerable interest is the female plant of Coco-de-mer *(Lodoicea sechellarum)* from the Seychelles which was planted in 1884. It flowered first in 1911 and after fertilization with pollen from the male plant at Peradeniya set fruit in the same year and is still bearing this first fruit and many younger ones.

Anuradhapura Garden was established in 1883 to make trials with trees and shrubs in the Dry Zone of the Colony. It was closed in 1906 when it was decided that the Department should devote greater attention to economic work and to agriculture. Some fine specimens of trees exist on the site of this Garden, which now forms the park-like grounds of the Hotel in this ancient city of Ceylon. Of particular interest are *Eucalyptus alba*, a Eucalypt suited to the drier zones of the Colony, *Santalum album*, (Sandal), and Teak *(Tectona grandis)*.

Badulla Garden was opened in 1886. The introductions to this garden included *Hevea brasiliensis*. These trees grew satisfactorily and demonstrated that rubber would grow on the Uva side of the island. It was closed in 1906 and now forms the Park of the Local Board of Badulla. In it there are fine specimens of trees, some of which have grown to fair dimensions.

The Nuwara Eliya Garden was opened in 1902. Here trials have been made with conifers and other trees suitable for the highest elevations, with horticultural plants, and with forage and other plants of economic importance. This Garden is now the popular Park of the well-known hill station of Ceylon. Part of the cost of its maintenance is met by the Board of Improvement of Nuwara Eliya and part by Government.

BOTANICAL RESEARCH.

The possibilities of botanical research in Ceylon were brought to the notice of European botanists at a comparatively early date in the history of botany. That was chiefly due to the work of PAUL HERMANN, who, as Chief Medical Officer in the Dutch East India Company's service in Ceylon from 1672 to 1677 collected plants in the Maritime Provinces and made notes on their uses. After leaving Ceylon, HERMANN became Professor of Botany at Leyden, and published some drawings and descriptions of Ceylon plants in Horti Academici Lugduno-Batavi Catalogus (1687). He had apparently intended to publish full accounts of the plants he had collected in Ceylon, but died before that had been accomplished. After his death, W. SHERARD brought out "Paradisus Batavus" (1698), which contains all the descriptions and illustrations of Ceylon plants which HERMANN had prepared for publication. More important than that, however, from a Ceylon point of view was a small book entitled "Musaeum Zeylanicum," which SHERARD published in 1717, for it is a Catalogue of HERMANN'S Ceylon herbarium, under the Sinhalese names of the plants, with notes on their uses, the meanings of the Sinhalese names, etc.

SHERARD was also instrumental in sending out to Ceylon a botanical collector, JOHN HARTOG. With the assistance of HARTOG'S specimens, and probably some of HERMANN'S, BURMANN compiled his "Thesaurus Zeylanicus" (1737), which contains a full account of what was known of Ceylon Botany at that date.

A few years later there occurred the most noteworthy feature of this period of Ceylon botany. In 1745, HERMANN'S Ceylon herbarium came into the hands of LINNÆUS, who examined and described all the specimens which had survived, and in 1747 published an account of them under the title "Flora Zeylanica." In that work, the plants are arranged according to the system of classification which LINNÆUS had recently proposed. Thus, Ceylon has the honour of possessing one of the earliest Floras based on the LINNÆAN system, and that written by LINNÆUS himself.

Interest in Ceylon botany was maintained throughout the period of the Dutch occupation. Seeds and fruits were sent to Holland by the Dutch Government from time to time, and it is most probable that in that way GAERTNER obtained the Ceylon specimens which figure so largely in his "De fructibus et Seminibus" (1789-91). C. P. THUNBERG, afterwards Professor of Botany at Upsala, collected in Ceylon in 1777-78, and subsequently wrote several papers on Ceylon plants.

In consequence of these investigations, Ceylon plants had become widely known, and the peculiarities of the Ceylon flora had no doubt been observed. This may have been a contributory factor in influencing the British Government to order the establishment of a Royal Botanic Garden in Ceylon.

On the institution of a Royal Botanic Garden in Colombo in 1812, the scientific side of botany was not altogether neglected, though it was perhaps in accordance with the plan of SIR JOSEPH BANKS that the earlier Superintendents were selected for their horticultural attainments so that the preliminary work of laying out the Gardens might be completed before scientific investigation was begun. Among the duties of the Superintendent, however, were "to make discoveries in botany" and "to form a Herbarium of dried plants for the future use of the establishment in Ceylon." But this policy of *festina lente* did not meet with the approval of local enthusiasts, and pressure was prematurely brought to bear on the first Superintendent, KERR, to compile a list of the plants of Ceylon. To the same influence we owe the publication of MOON'S Catalogue of the Indigenous and Exotic Plants growing in Ceylon, like most books written to order, "an unsatisfactory production," its chief value depending on the fact that it brings together in one list most of the previous records of Ceylon plants.

The scientific era of the Royal Botanic Gardens may be said to have begun with the appointment in 1844 of GEORGE GARDNER. The change of policy which that appointment indicates was probably due to the representations of CAPTAIN CHAMPION, an amateur botanist of great ability who was in Ceylon from 1838 to 1847. GARDNER had previously travelled in Brazil, and brought out to Ceylon a large herbarium and a

Plate 7. AN OLD VIEW IN THE ARBORETUM.

Plate 8. THE FERNERY.

good botanical library. He threw himself energetically into the work of investigating the Ceylon Flora, but was not destined to complete it, as he died in 1849 at the early age of 37. His contributions to Ceylon Botany are contained in six papers in the CALCUTTA JOURNAL OF NATURAL HISTORY, of which Journal he was one of the conductors, and a paper entitled "Some remarks on the flora of Ceylon" published in the appendix to LEE'S translation of RIBEYRO'S History of Ceylon, 1847. His interests extended beyond the flowering plants, and he sent to England a collection of specimens and paintings of fungi, which were described by BERKELEY.

Ceylon was fortunate in obtaining as a successor to GARDNER, GEORGE HENRY KENDRICK THWAITES, a botanist who had already secured a European reputation by his investigations on Algæ and Diatomaceæ, his most important contribution being the discovery of conjugation in the latter group, which finally settled their position in nature. On his arrival in Ceylon in 1849, he turned his attention to the phanerogamic flora, and, the duties of the Superintendent of Botanic Gardens being at that time chiefly of a scientific character, he was able to devote himself almost exclusively to its investigation during the next ten years.

THWAITES made numerous collecting tours in various parts of the Island and discovered a number of new and interesting plants, many of which were described in papers in HOOKER'S LONDON JOURNAL OF BOTANY, among them representatives of twenty-five new genera. At the same time he formed a numbered series of Ceylon plants (known as C.P.), sets of which were distributed to the principal herbaria in Europe in exchange for other specimens or for botanical books, so that in the course of a few years Ceylon plants were well represented in botanical collections.

In 1858, THWAITES had amassed sufficient information concerning the flora of Ceylon to begin the publication of a catalogue of Ceylon plants. That work, Enumeratio Plantarum Zeylaniæ, was completed in 1864, and "at the time of its publication was the first complete account on modern lines of any definitely-circumscribed tropical flora. The want of affinity which the flora thus worked out was seen to have to the general vegetation of the contiguous peninsula of Hindustan

and its marked relation to that of the Malayan region established facts of the greatest significance in the study of geographical distribution."

After the publication of the Enumeratio, THWAITES turned again to cryptogamic botany, and made large collections which were worked out by specialists in England, the fungi by BERKELEY and BROOME, the lichens by LEIGHTON, and the mosses by MITTEN. The abundance of specimens which he sent to England caused Ceylon cryptogams to form a large proportion of the British National Collections.

During the last ten years of THWAITES' tenure of office, the character of the duties of the Director of the Botanic Gardens was steadily changing, and it was becoming more and more necessary that he should address himself to the application of botanical knowledge to practical agriculture. Consequently, his later publications were confined to reports on agricultural subjects. He retired in 1880, and died in Kandy in 1882, never having left the Island since his arrival in 1849.

THWAITES was not only a botanist, but a keen all-round naturalist. He contributed a large part of the information on natural history contained in TENNENT'S Ceylon, and notes on butterflies to MOORE'S Lepidoptera of Ceylon, the plates for which were executed by the draughtsman of the Royal Botanic Gardens.

Among the botanists who visited Ceylon in THWAITES' time were W. H. HARVEY (Short characters of three new algæ from the shores of Ceylon) DR. T. THOMSON, BECCARI (Mycetum in itinere Borneensi), R. H. BEDDOME, H. N. MOSELEY, SIR THOMAS HANBURY, SIR GEORGE KING, etc. M. M. HARTOG, who was Assistant Director of the Gardens from 1875 to 1877, contributed a paper "On the floral structure and affinities of Sapotaceæ."

Towards the close of THWAITES' Directorship, the ravages of the coffee leaf disease fungus induced the Ceylon Government to appoint a Mycologist, attached to the Botanic Gardens, to investigate that disease. This, we believe, was the first appointment of an official mycologist in the British Empire. The botanist selected was HARRY MARSHALL WARD, subsequently Professor of Botany in the University of Cambridge, and celebrated for his researches on fungi. In addition to his official

reports on the coffee leaf disease, his work in Ceylon is represented by papers, "Researches on the life history of *Hemileia vastatrix*," "On the morphology of *Hemileia vastatrix*," "Researches on the morphology and life history of a tropical Pyrenomycetous fungus," "On the structure, development, and life history of a tropical epiphyllous lichen," and "On the morphology and development of the perithecium of Meliola."

MARSHALL WARD left Ceylon on the termination of his temporary appointment (February, 1880—September, 1881).

THWAITES was succeeded by HENRY TRIMEN, who prior to his appointment was an assistant in the Botanical Department of the British Museum and a well-known botanical writer, being joint author of "The Flora of Middlesex," and BENTLEY and TRIMEN'S "Medicinal Plants," as well as proprietor of the JOURNAL OF BOTANY. The work of the Director of Botanic Gardens had now definitely become that of Agricultural Adviser to the Ceylon Government and to planters, and TRIMEN'S annual reports show that he kept that view of his duties always in the foreground. His first scientific contributions from Ceylon dealt with the determination of the various species of Cinchona, a product which was then engaging the attention of the Ceylon planters, and on that subject he was generally regarded as an authority. At the same time, he continued the investigation of the Ceylon flora, making tours in parts of the Island which had not been explored botanically, and contributing papers on his discoveries to the JOURNAL OF BOTANY.

THWAITES' Enumeratio was a work of reference for botanists, and contained descriptions of the new species only. It had been his intention to follow that with a full descriptive flora of the Island, but official duties and advancing age prevented his carrying out this work. TRIMEN took up that task and pursued it with a thoroughness which has seldom been equalled, not only touring the Island to fill up the gaps in our local knowledge, but visiting the Herbaria of Kew and the British Museum, the latter of which possesses HERMANN'S herbarium, and determining exactly what the old records referred to, and elucidating with marked success the obscure points in Ceylon botanical history. It is rare to find any detail in relation to the earlier

botanical records which TRIMEN had not considered. His labours culminated in the publication of the HANDBOOK OF THE FLORA OF CEYLON which, unfortunately, he did not live to complete. The first three volumes of that work were published during his life-time, while the last two were completed after his death, partly from his notes, by SIR J. D. HOOKER. His historical researches, already referred to, are indicated chiefly by illuminating foot-notes in the Flora; in addition, he published a paper on "HERMANN'S Herbarium and LINNÆUS'S Flora Zeylanica" in the JOURNAL OF THE LINNEAN SOCIETY. His other works include papers "On the Flora of Ceylon, especially as affected by Climate," "Remarks on the Composition, Geographical Affinities and Origin of the Ceylon Flora," and "Hortus Zeylanicus: a classified list of the plants, both native and exotic, growing in the Royal Botanic Gardens, Peradeniya, Ceylon," the latter being not merely a gardens' list, but including the dates of introduction of the majority of the exotic species cultivated in Ceylon. It is remarkable that although TRIMEN was specially interested in the Gramineæ, and, judging from his notes, had contemplated the production of a monograph of that family, none of his manuscript relating to the Gramineæ could be found after his death.

As will be evident, the record of botanical research as outlined above relates chiefly to systematic botany. This was inevitably the case, as the determination of a flora of a country naturally precedes any detailed investigations in ecology, anatomy and other branches of botany. But, thanks to the labours of THWAITES and TRIMEN, Ceylon possessed at the close of the last century a more complete knowledge of its flora, whether phanerogamic or cryptogamic, than any other tropical country.

Meanwhile, the changes in the trend of botanical investigation in Europe had not been without influence in Ceylon. In 1885, PROFESSOR F. O. BOWER had called the attention of British botanists to the advantages to be derived from studying botany in the Tropics, and shortly afterwards had set an example by visiting Ceylon. In the following year, he again brought up the subject, this time before the British Association, TRIMEN

Plate 9. THE PALMYRAH PALM AVENUE.

Plate 10. THE TALIPOT PALM AVENUE.

Plate 11. THE ROYAL PALM AVENUE.

Plate 12. THE CABBAGE PALM AVENUE.

Plate 13 A VIEW OF THE FLOWER GARDEN.

being present in support, with the result that the British Association gave a grant towards fitting up a room at Peradeniya with some of the essentials of a botanical laboratory.

Continental botanists had already realised the possibilities of study in the tropics, and among those who visited Ceylon about this time were K. GOEBEL (Utricularia), G. KARSTEN (Mangrove vegetation), K. GIESENHAGEN (Ueber Hexenbesen an tropischen Farnen), G. HABERLANDT, etc.

The first British botanist to take advantage of the facilities afforded by the British Association grant was M. C. POTTER ("Observations on the Protection of Buds in the Tropics"). He was followed in 1891, by J. B. FARMER, who studied Hepaticæ and Filices, subsequently discovering the quadripolar spindle in *Pallavicinia decipiens*, and contributing papers on Angiopteris and Helminthostachys. F. W. KEEBLE, who came out in 1893, investigated the structure and biology of Loranthus ("Observations on the Loranthaceæ of Ceylon") and "The hanging foliage of certain tropical trees." W. G. FREEMAN (1896-7) wrote a paper "On the Anabaena-containing roots of Cycas," and collected algæ which were subsequently described by W. and G. S. WEST ("A Contribution to the Fresh Water Algæ of Ceylon"). A. J. EWART (1897) studied "The effects of tropical insolation." DR. C. PENZIG (1897) and DR. G. CLAUTRIAU (1897) made general observations on their special subjects, while H. H. W. PEARSON (1897) investigated the flora of the up-country grass lands and, in conjunction with PARKIN, wrote an ecological paper, "The Botany of the Ceylon Patanas." In 1898, DR. MAX FLEISCHER worked in the laboratory and collected mosses in several parts of the Island.

In 1896, TRIMEN was succeeded by J. C. WILLIS who had previously been Senior Assistant in Botany in the University of Glasgow. In the earlier days of his tenure of office, WILLIS thoroughly investigated the Podostemaceæ of Ceylon and India, and published "A revision of the Podostemaceæ of India and Ceylon," "Studies in the Morphology and Ecology of the Podostemaceæ of Ceylon and India," and "On the dorsiventrality of the Podostemaceæ, with reference to current views on evolution." During the same period, he contributed "Notes on

the flora of Minikoi," and, in collaboration with J. S. GARDINER, published "The Botany of the Maldive Islands." His later work in Ceylon dealt chiefly with problems of evolution, and found expression in "The flora of Ritigala, a study in endemism," "Hill-top floras of Ceylon," "On the flora of Naminakulikanda," "Some evidence against the origin of species by natural selection of infinitesimal variations, and in favour of the theory of mutation," "Further evidence against the origin of species by infinitesimal variations," and "The geographical distribution of the Dilleniaceæ as illustrating the treatment of this subject on the theory of mutation." Ultimately, the views expressed in these papers led to the enunciation of his "Age and Area" theory.

WILLIS retired in 1911, and upon the organization of the Department of Agriculture, PETCH, in 1913, assumed responsibility for systematic botany, and MACMILLAN was entrusted with the superintendence of all horticultural work and the Gardens.

PETCH has been responsible for the following publications:—Revisions of Ceylon Fungi, I-VI; The Fungi of Certain Termite Nests; The Phalloideæ of Ceylon; Studies in Entomogenous Fungi; The Genus Endocalyx; A List of the Mycetozoa of Ceylon; Ustilagineæ and Uredineæ of Ceylon; A Preliminary List of Ceylon Polypori; Gasteromycetæ Zeylanicæ; Hypocreaceæ Zeylanicæ; etc.

In 1898, WILLIS secured the institution of a post of Scientific Assistant, which provided means whereby a young botanist could take up work in Ceylon for a period of two years. The first occupant of that post was J. PARKIN (1898-99) who, after collaborating with PEARSON in his investigation of the botany of the Ceylon Patanas, turned his attention to *Hevea brasiliensis*, the cultivation of which was then beginning to be undertaken on a commercial scale. As a result of his work on the chemistry of Hevea latex, PARKIN recommended the use of acetic acid for coagulation, a method which has been almost universally adopted. Considering the laboratory facilities and equipment then available at Peradeniya, PARKIN'S success in dealing with this question was remarkable. His chief work on that subject is contained in a Circular of the Royal Botanic Gardens, entitled "Caoutchouc or India-rubber; its origin, collection, and preparation for the

market," while he published elsewhere, "Some observations bearing on the function of latex," "Observations on latex and its functions," and on general botanical subjects, "The extra-floral nectaries of Hevea brasiliensis," "On a brilliant pigment appearing after injury in species of Jacobinia," and "Fungi parasitic upon scale insects."

PARKIN was succeeded in the post of Scientific Assistant by H. WRIGHT (1900-1902) who studied the Ceylon ebonies (The genus Diospyros in Ceylon), and various physiological problems (Tropical timbers and their rings of growth: Foliar periodicity of endemic and indigenous trees in Ceylon). After WRIGHT came R. H. LOCK (1903-04) who carried out experiments in plant breeding, "Studies in plant breeding in the Tropics," and "On the growth of giant bamboos." LOCK's experiments with peas provided the first demonstration on a large scale of the truth of MENDEL's theory, while his observations on the growth of giant bamboos enabled BLACKMAN to formulate his theory of limiting factors. He also made investigations on cacao varieties. A. M. SMITH, who was Scientific Assistant in 1905-06, studied tropical plant physiology "On the internal temperature of leaves; also observations on the periodicity of young coloured leaves of trees;" "On the application of the theory of limiting factors to measurements and observations of growth in Ceylon;" "The effect of the moon's phases on the period of felling bamboos;" "Physiology of plants in the tropics." After 1906, owing to re-arrangements in the staff of the Department, the post of Scientific Assistant was abolished.

Other workers who made use of the old laboratory in 1899-1900 included K. GOEBEL, E. S. GOODRICH, E. M. WILCOX, A. PREYER, who investigated the fermentation of cacao (Ueber Kakaofermentation), R. H. YAPP (Fruit dispersal in *Adenostemma viscosum*), K. GIESENHOGEN, A. G. TANSLEY (The flora of the Ceylon littoral, TANSLEY and FRITSCH), and C. HOLTERMANN.

WILLIS began the publication in 1897 of a periodical entitled "Circulars of the Royal Botanic Gardens, Peradeniya," intended to convey information on economic questions, and in 1901 he founded a scientific botanical journal, "The Annals of the Royal Botanic Gardens, Peradeniya."

It soon became evident that the laboratory accommodation, —a single room, provided with a balance and an unreliable water supply—was quite inadequate to meet the needs of the steadily increasing stream of scientific workers, and, on the representations of the Director, a visitors' laboratory of six rooms was built, and opened at the end of the year 1900. This was occupied, more or less continuously, by scientific visitors until the outbreak of the war in 1914. Space does not permit the enumeration of all of these, and it must suffice to name those who are known to have contributed papers on Ceylon subjects.

C. HOLTERMANN (1900-01), partly on his work on plant physiology and fungi at Peradeniya, wrote "Mykologische Untersuchungen aus den Tropen," "Der Einfluss des Klimas auf den Bau der Pflanzengewebe," "Anatomisch-physiologische Untersuchungen in der Tropen" and "Fungus cultures in the Tropics." W. H. LONG (1901) discovered the prothalli of *Ophioglossum pendulum* and *Helminthostachys zeylanica*, and wrote "On the prothalli of *Ophioglossum pendulum* and *Helminthostachys zeylanica*." "On a prothallus provisionally referred to Psilotum" "On the embryo of Helminthostachys," "On the anatomy and branching of the rhizome of Helminthostachys," "On apospory in *Anthoceros laevis*," and "On the morphology of Cyathodium." N. E. SVEDELIUS (1902-03) investigated marine algæ and published five papers on that subject, in addition to others in phanerogamic botany. F. E. FRITSCH (1903) investigated the fresh-water algæ, and published "A general consideration of the sub-aerial and fresh-water algæ of Ceylon," "The role of algal growth in the colonisation of new ground and in the determination of scenery," "The sub-aerial and fresh-water algal flora of Ceylon," and "On the occurrence of, Pleodorina in the fresh-water plankton of Ceylon. F. RAMALEY (1904) contributed "A study of certain foliaceous cotyledons," and D. H. CAMPBELL (1906), "Germination of the spores of Ophioglossum." F. VON HÖHNEL (1907) worked on fungi and published his results in his "Fragmente zur Mykologie." F. CZAPEK (1907) experimented on hanging foliage, and wrote "Ueber die Blattentfaltung der Amherstieen." W. MAGNUS (1908) wrote "Die atypische Embryonal-entwicklung der Podostemaceen." H. DINGLER (1909) studied physiological and

ecological problems, and published "Zur oekologischen Bedeutung der Flugel der Dipterocarpaceen-Fruchte," "Ueber Periodizität sommergruner Baume Mitteleuropas im Gebirgsklima Ceylon," and "Versuche ueber die Periodizität einiger Holzgewachse in den Tropen," W. ROTHERT (1909) made "Beobachtungen an Lianen."

Most of the scientific visitors who worked in the laboratory took away with them material of general interest for future study, and some of this has since been dealt with by them or by their students. To that we owe papers on Ceylon material by T. G. HILL (On the roots of Bignonia), H. M. ARMOUR (On the morphology of Chloranthus), B. G. CORMACK (On the polystelic roots of certain palms), W. C. WORSDELL (On the comparative anatomy of certain species of the genus Christisonia; On the Development of the ovule of Christisonia), D. T. GWYNNE-VAUGHAN (On an unexplained point in the anatomy of *Helminthostachys zeylanica)*, R. F. SHORE (On the structure of the stem of *Angiopteris evecta)*, E. N. THOMAS (Some points in the anatomy of *Acrostichum aureum)*, H. THOMAS (Notes on Cephaleuros), R. BEER (On the development of the spores of *Helminthostachys zeylanica)*, C. A. BARBER (On the nature and development of the corky excrescences on the stems of Zanthoxylum), A. M. CLARK (Secondary thickening in *Kendrickia Walkeri)*, etc.

The above account indicates the scientific botanical work which has been done at the Royal Botanic Gardens. It takes no account of the excellent work which has been accomplished by the long line of eminent amateur botanists who have studied the Ceylon flora and contributed considerably to our knowledge. Among these may be mentioned COL. and MRS. WALKER, CAPT. CHAMPION, H. NEVILL, REV. S. O. GLENIE, W. FERGUSON, F. W. K. BECKETT, G. WALL, J. F. JOWITT and their present day representative F. LEWIS.

ECONOMIC BOTANY AND AGRICULTURE.

The primary work of the Royal Botanic Gardens, in addition to scientific investigations on the indigenous flora of the Colony, has been in connection with the introduction and acclimatisation

of plants of ornamental and economic value. In this work Peradeniya has played a most important part in the agricultural development of the Colony.

The instructions issued to MOON in 1822 were to the effect that he should give attention to "the growth of coffee which His Excellency has particularly at heart to see established throughout the Island." The Gardens planted some areas in coffee and considerable plantations were established within its vicinity.

Throughout the hundred years since Peradeniya was established special attention has been given to the economic aspect of its functions.

Coffee was probably introduced into the Colony from Java by the Dutch, and in 1845 Peradeniya was largely supplying estates with seedling plants of the Arabian variety. The Liberian coffee was first introduced in 1873, and its cultivation made a marked advance in 1876. In the same year coffee seed was introduced from Mauritius and in 1879 from Jamaica. Coffee leaf disease became noticed first in 1869 and during the years 1880-1881 MARSHALL WARD carried out researches into the life history of the fungus responsible for the disease with a view to discovering preventive measures for its control. The efforts to control the disease were unsuccessful, and the coffee industry of the Colony collapsed completely—to the ruin of most estates and to the financial embarrassment of Government. With dogged industry the coffee planters, with the assistance of TRIMEN, who was enthusiastic in regard to the introduction and spread of new agricultural industries, made extensive trials with other products, with the result that land formerly occupied by coffee was successfully cultivated with cinchona and subsequently with tea. There are, however, remnants of the old Arabian coffee to be found in various districts of the Colony. During recent years, through the efforts of the Experiment Station at Peradeniya the cultivation of the Robusta types of coffee introduced in 1900 have been taken up and are gradually being extended. Other varieties have been experimented with and these trials are being continued.

IN THE INSIDE OF THE OCTAGON CONSERVATORY

Plate 15. THE OLD SATINWOOD BRIDGE AT PERADENIYA ON THE COLOMBO-KANDY ROAD.

Plate 16. THE NEW BRIDGE AT PERADENIYA.

Following coffee, cinchona was the next important planting industry. In 1861, seeds of cinchona were received from India and plants from Kew. Seed of SPRUCE's collection of *Cinchona Succirubra* were also received in 1861 from consignments sent to the East by MARKHAM. Plants from the same collection of seed were received from Kew in 1862 and plants of *Cinchona Calisaya* were received from Java in 1863. The present Hakgala garden was selected as a site for the experimental trial of cinchona, and in 1865 about 180,000 plants were distributed while in the year 1876 a total of 1,224,000 plants were sent out. The once lucrative industry of cinchona was the creation of the Botanic Gardens from supplies of seed and plants obtained as the result of MARKHAM's mission to Peru at the instance and expense of the Indian Government. The industry followed the collapse of coffee and helped very considerably to resuscitate the ruined coffee plantations. With the expansion of cinchona growing in Java and in India, and with the establishment of improved varieties of quinine-yielding plants the industry in Ceylon became unremunerative and gave place to tea.

Another industry that came into prominence upon the collapse of coffee was cacao. This was an old introduction. It is not mentioned previous to MOON's catalogue in 1824—but there are records of a case of plants introduced from Trinidad in 1834-5 and of young plants being advertised for sale from Peradeniya in 1843-1845.

The possibilities of cacao cultivation were insisted upon by THWAITES and in 1873 a special effort was made to assist its extension by the publication of notes upon its cultivation. In 1880, a consignment of eleven of the most highly prized varieties were secured from Trinidad. Seeds from these have been distributed and have been the origin of most of the hardy Forastero types which are at present under cultivation in the Colony.

The cultivation of tea likewise came into popularity upon the collapse of coffee. It is recorded that tea was introduced before 1828 and was found growing on the site of the old Botanic Garden

at Caltura in 1841. A re-introduction took place in 1839. In that year WALLICH sent seed of the then newly-discovered Assam tea to the Royal Botanic Gardens, Peradeniya, and plants of the same variety in 1840. Some of these were forwarded to Nuwara Eliya for cultivation. In 1841-42 individual introductions of China and Assam tea seed were made by planters and in 1845 China tea was introduced or re-introduced into the Gardens. In 1847, Assam tea was obtained. The Assam hybrid variety was secured in 1867 and 1868 and in 1870 plants began to be distributed from Hakgala Garden. The first tea made in Ceylon for sale was in May 1872 on Loolecondera Estate, the Superintendent of which secured seed from the Botanic Gardens at Peradeniya in 1866. During 1873 and 1874 many plants of both the Assam hybrid and the China variety were distributed from Peradeniya and Hakgala and additional supplies were imported from India. In 1882, seed from the older established plantations became available and from 1884 the rush into tea took place. Since that date the industry has continued to flourish and expand, with but few set-backs, and is now one of the three main agricultural industries of the Colony.

The whole rubber industry of the East owes much to the work of the Botanic Gardens of Ceylon. The possibility of introducing South American rubber-producing trees into India first occurred to MARKHAM about the year 1870. Two thousand seed of *Hevea brasiliensis* were obtained by the India Office from Cameta in 1873. Only 12 plants were raised at Kew and six of these were sent to Calcutta where the climate proved to be unsuitable. CROSS in 1875 collected plants of *Castilloa elastica*, and cuttings from these were sent to Peradeniya in 1876. In 1876 he again proceeded to Para where he collected 1,080 seedlings, from which 100 plants were eventually raised. He also went to Ceara and collected seeds and plants of *Manihot Glaziovii*. From both of these collections Ceylon received its share for Peradeniya.

Meanwhile, prior to CROSS' second expedition, WICKHAM had been commissioned by Kew to obtain seeds of *Hevea brasiliensis*. He succeeded in obtaining 70,000 seeds from the Tapaios plateau, and from this collection, which was sown in

Plate 17. VIEW OF THE MAHAWELIGANGA, SHOWING BAMBOOS.

Plate 18. THE LABORATORY, LIBRARY, HERBARIUM & ECONOMIC MUSEUM.

the Royal Botanic Gardens, Kew, 7,000 seedlings were raised. From these 1,919 plants were despatched to Ceylon in August 1876. It had previously been considered that through the want of any accessible and properly constituted Botanic Garden in any part of India suitable for the propagation of tropical species the majority of the plants should be sent to Ceylon and thence to Burma and other parts of India. In 1877, the plants were put out at the Garden at Heneratgoda, which had been specially selected and established for their reception. From 1877 to 1880, plants raised from cuttings were distributed to Burma, Southern India and to a few Ceylon planters. The first tree flowered at Heneratgoda in 1880, and the first Ceylon-grown seed were secured in 1881. From 1884 all seeds were sold to estates or were distributed to Botanic Gardens abroad.

It is unnecessary further to describe the now well-known rise of the rubber industry of the East. Ceylon has faithfully carried out the mission entrusted to her, and the greater portion of the important rubber industry of the East owes its plants to seed or stocks from the Botanic Gardens of Ceylon.

The boom in rubber planting took place in 1905-1907. In 1906, the first of the World's Rubber Exhibitions, was held upon the Great Circle of the Royal Botanic Gardens, Peradeniya. At this exhibition—plantation rubber in its then known forms was exhibited and a Conference upon the agriculture and chemistry of rubber held. This Exhibition was the precursor of the International Rubber Exhibitions which have since been periodically held in London and which have done so much to spread a knowledge of rubber, its production, uses and possibilities.

The cultivation of cardamoms was also stimulated from Peradeniya. The valuable Malabar variety was introduced at an early date. THWAITES in 1868, however, advocated its systematic cultivation and in 1873 this industry began to be taken up.

Coca *(Erythroxylon Coca)* was introduced in 1870 and a small industry established. Its cultivation in Ceylon is now prohibited, with the exception of small experimental plots at Peradeniya. This drug thrives well in Ceylon and the whole of the Empire's requirements could easily be supplied by the island.

Camphor was first introduced in 1852. In 1908, attempts were made to encourage its cultivation. Several of these cultivations were successful, but had to be eventually abandoned owing to the fall in prices. These plantations were established from seed imported from Japan, as camphor, although it has flowered in Ceylon, has not as yet set fertile seed.

Nutmeg was introduced into Ceylon by the Dutch but the plants were afterwards destroyed. It was subsequently re-introduced in 1804 and large number of seeds were supplied from Peradeniya from 1843 onwards. Efforts have also been made from time to time to revive the cultivation of cloves from the trees growing at Peradeniya. Vanilla is grown upon some estates, Peradeniya having supplied planting material from 1853 onwards. Kola, having been introduced into the Gardens in 1879, is still grown upon some estates. Croton cultivation was also encouraged and was successful.

In recent years the possibilities of Sisal have been demonstrated. This plant was introduced by Peradeniya in 1890 and an experimental plantation was made at Mahaillupallama in the North-Central Province in 1909. It grew most satisfactorily and has given rise to a more extended experimental plantation at Anuradhapura and to an estate at Mahaillupallama.

Attempts have also been made at the cultivation of cotton. They were first made at Peradeniya in 1852-53, but the climate was found to be unsuitable. Further efforts were made at Mahaillupallama in 1903 and a more extended trial at Ambalantota in the Southern Province was begun in 1921.

The value of the cultivation of the West African oil-palm is also being tested. This palm was introduced in 1850 and some of the oldest specimens are to be seen at the Entrance Gates of the Royal Botanic Gardens. Seed from selected varieties of this palm were secured from the Gold Coast in 1913, and a small plantation made at the Experiment Station at Anuradhapura. Seed of further varieties from the Belgian Congo and from Nigeria was secured in 1921.

Fodder grasses have also received attention. The principal fodders of Ceylon are the so-called Mauritius Grass, *(Panicum molle)* and Guinea Grass *(Panicum maximum.)* These are both

South American grasses, which have become naturalised in the island. The date of the introduction of the former is not known but latter was introduced before 1824. *Paspalum conjugatum* was introduced in 1866, and *Paspalum dilatatum* in more recent years. Tests are at present in hand with further introductions.

A large number of valuable trees have been introduced from time to time and acclimatized, and the present re-afforestation with exotic species is based largely upon the experience of introductions by Peradeniya. The West Indian Mahogany *(Swietenia Mahagoni)* was introduced between 1828 and 1843, and succeeds well upon all soils with a coral sub-soil formation. There are good specimens of this valuable timber tree growing in the Gardens at Peradeniya. The Honduras Mahogany *(Swietenia macrophylla)* was introduced in 1888 and gives promise of being a most valuable tree for the low wet zone. *Cedrela Toona* grows with great rapidity between elevations of 4000-5500 feet and is a common feature in up-country tea estates. It was introduced in 1852, while the West Indian species *Cedrela odorata* was secured in 1884. Upon the Uva side of the Colony *Grevillea robusta* is a common feature of the landscape. It was introduced in 1856. The general aspect of many parts of the higher elevations of the island have been changed by plantations of Acacias and Eucalyptus, while Conifers are common features in small plantations, in gardens and along roads. The most common of these are *Acacia Melanoxylon*, *Acacia decurrens*, *Cupressus macrocarpa* introduced in 1881, *Cupressus Knightiana* introduced in 1893 and *Eucalyptus robusta* in 1881. The spread of these species suited to the higher elevations has taken place through the branch garden at Hakgala.

Sandal *(Santalum album)* was first grown at the Peradeniya Gardens in 1869. It, however, requires a drier climate and plants forwarded by Peradeniya to Badulla have given rise to a most promising plantation which has seeded freely and is now spreading naturally.

Toluifera Pereiræ, the Balsam of Peru, was introduced in 1861. It grows well and seeds prolifically in and near Kandy.

The beautiful shade trees along the road sides of Ceylon form one of the pleasing features of the Island and the shade afforded

thereby is most welcome to all travellers. The majority of shade trees below 3000 feet are *Pithecolobium* (Inga) *Saman*, the Rain Tree of Venezuela, which was introduced by Peradeniya about 1851. Three of the original trees are still to be seen growing in the Gardens. The shade trees for cacao, *Erythrina umbrosa* and *Erythrina velutina*, were introduced in 1881, while the well-known dadap *(Erythrina lithospermum)* used as a green manure for tea cultivations was introduced from Java and *Tephrosia candida* was obtained in 1852. *Alibizzia Moluccana* was secured in 1880 and *Gliricidia maculata* in 1883.

Ceylon owes most of its fruit to importations. The Anonas and Passion fruits were introduced in very early times from Tropical America. Citrus fruits came from India and Java, Pine-apples from America, Papaw and Sapodilla from the West Indies. Peradeniya has played its part in the introductions of fruits, of which mention may be made of the following :—Durian from Malaya in about 1850, Mountain papaw from Peru in 1880, Tree tomato from Peru in 1884 and Cherimoya from Pera in 1882. Peaches, Apples, Plums, Strawberries and Pears have also been tried from time to time at Hakgala, and are cultivated in many gardens up-country.

DEVELOPMENT OF THE DEPARTMENT OF AGRICULTURE.

While the practical work of Peradeniya in the early years of its existence was mainly directed towards the introduction and acclimatisation of useful and ornamental plants, activities in later years have developed towards economic botany and agriculture. The chief work upon the economic side was the testing and distribution of economic plants of possible commercial value. This work was of great importance in the early economic development of the Colony and it is natural that later requirements necessitated provision for the investigation of the commercial possibilities of economic crops, the study of plant pests and diseases, enquiries into the chemical and physical properties of Ceylon soils and led eventually to the gradual development of a Department of Agriculture.

Plate 19. THE GARDNER MEMORIAL.

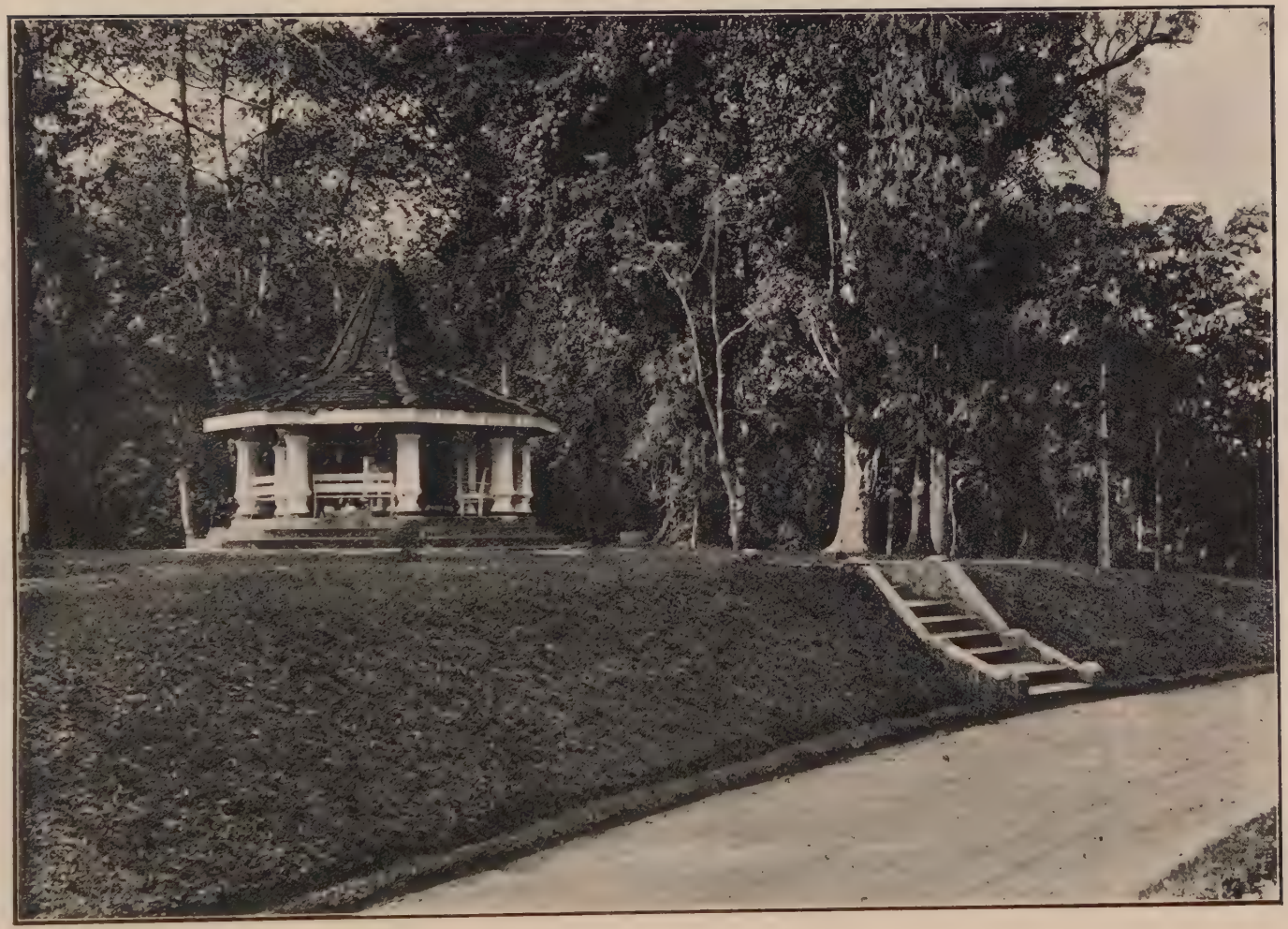

Plate 20. THE THWAITES MEMORIAL.

The first step taken for the encouragement of agricultural enquiries was the issue in 1897 of "Circulars," giving brief accounts of the cultivation and treatment of economic crops and information on the important pests and diseases affecting cultivated plants. An honorary Entomologist was appointed and a Mycologist was obtained by the Planters' Association for the investigation of cacao disease—then prevalent in Matale and other districts.

In 1899, a post of Entomologist was established on the permanent staff of the Botanic Gardens and to this post E. E. GREEN was appointed. He is well known as an authority on Coccidæ and as the author of the monograph on "The Coccidæ of Ceylon." He investigated the principal pests of tea, cacao, coconuts, and paddy in Ceylon, and for his labours in entomology in the East he was awarded in 1901 the Barclay Medal being the first recipient of that honour. He was succeeded in 1913 by RUTHERFORD and by HUTSON in 1918. The latter has paid special attention to the pests of tea, coconuts and paddy, having worked out in detail many of the various points not settled by GREEN SPEYER made investigations into the Shot-hole borer pest of tea from 1914 and was followed by JEPSON in 1919. JARDINE made a careful investigation of the Tea Tortrix from 1915-1917. HENRY worked with the Department from 1915-1918 and assisted in classifying the collections. Other work in entomology and zoology has been carried out at Peradeniya by visiting scientists. Among these may be mentioned H. UZEL (Thysanoptera), F. DOFLEIN (Termites), K. ESCHERICH (Termitenleben auf Ceylon) R. C. PUNNETT, C. DOBELL, J. C. F. FRYER and L. PLATE.

In 1900, J. B. CARRUTHERS was appointed Mycologist and investigations of the canker disease of cacao were continued. Other diseases, such as canker disease of rubber, branch canker of tea, root diseases of tea, were also investigated. In 1905, he was succeeded by PETCH, the present occupant of the post. The earlier collection of fungi from Ceylon have been thoroughly examined by him and an attempt has been made to identify all the species of fungi previously recorded from Ceylon. The results of this work are in course of publication as "Revisions of Ceylon

Fungi." Systematic accounts of several groups have also been published, as well as detailed papers on the fungi of termite nests and fungi parasitic on scale insects. The investigation of the diseases of economic plants has been carefully and thoroughly carried out, and this work on the diseases of cacao, coconuts, tea and rubber are well known to agriculturists in the tropics and to all scientific institutions. Peradeniya has in recent years become a recognised centre of mycological knowledge, and requests for information and for assistance and advice are received from many parts of the Empire's eastern possessions. PETCH in 1911 published "The Physiology and Diseases of Hevea brasiliensis" and in 1921 a revised and more complete account of the diseases of *Hevea brasiliensis* under the title "Diseases and Pests of the Rubber Tree." He has also analysed the recent results of experiments on the tapping of rubber and has performed work of the greatest value in his investigations of control measures against various diseases.

In 1906, the services of BAMBER as Agricultural Chemist were obtained. He has been responsible for investigations into the chemical and physical properties of the soils of the Colony, for trials and investigations as to the manurial requirements of various crops, the yields and distillation of citronella and lemon grass oils, the distillation of camphor and for many other investigations of importance to the rubber and other industries. BAMBER's main work in Ceylon has, however, been in connexion with the tea industry and to him that industry is greatly indebted. He has been mainly responsible for the spread of green manuring throughout the Island and the tea industry owes much of its present day methods of cultivation to his efforts. He has also made investigations into the chemistry of tea and has made visits to Assam, Formosa and Japan for the purpose of making enquiries into the methods employed in those countries.

In 1902, the first real step towards the development of the Botanic Gardens department into a Department of Agriculture was taken. The old cacao estate at Gannoruwa, opposite the Botanic Gardens at Peradeniya was acquired. WRIGHT was its first Superintendent and did good work in the investigation of cacao cultivation and the treatment of its diseases, and in the

Plate 21. BUTTRESS ROOTS OF *FICUS ELASTICA.*

Plate 22. BUTTRESSES OF *CANARIUM COMMUNE.*

Plate 23. VIEW OF THE RUBBER EXHIBITION, 1906.

development of rubber planting. The work on this Station has been of the greatest value to the planting industry of the Colony. Manurial experiments with various crops are being carried out, tapping experiments with rubber systematically conducted, the cultivation of cacao studied, the value of green manuring in tea demonstrated, yields of lemon grass investigated, trials being made with many crops of economic importance and in recent years detailed investigations, from the point of view of the economic botanist, have been begun in respect to the individual yields of rubber of known parentage, the variation of individuals of cacao of known parentage and to the selection and improvement of paddies. The Station has also provided material for the researches of CAMPBELL with *Hevea brasiliensis* on "Seasonal variations in the Storage of Plant Food and their Relation to Resting Periods." "The effect of Tapping on the movements of Plant Food" and "the Physiological effects of various tapping systems" and of CAMPBELL and BRYCE on "The variation in the Number of Latex vessels at different heights from the ground."

Another Experiment Station was opened in 1904 in the Dry zone at Mahailluppalama. Extensive trials were made with cotton, tobacco, paddy, coconuts under irrigation and with sisal. The latter crop shows promise of being a valuable possibility for the drier regions of the Colony, and upon the closing of this Station in 1918, it was acquired by private enterprise for the first sisal plantation in the colony. All supplies for planting were secured from the plots previously established by the Experiment Station, which has laid the foundation of a possible new era for much of the dry area of the colony—described by some as its most promising unrealized asset.

During 1904, the Agricultural Society was started. The Society has done much to popularize agriculture, to bring to the notice of agriculturists the value of the investigations of Peradeniya and to awaken a demand for a fully equipped Department of Agriculture capable of meeting all the demands of the varied agricultural interests.

In 1906, charge was taken of School Gardens attached to elementary schools. In these Gardens, nature study is taught and

an effort made to teach the pupils to become keen observers and to take an interest in agriculture and in their rural surroundings. C. DRIEBERG was in charge of these Gardens from their inception until 1919 and performed valuable service in the development of this aspect of agricultural education. Under his guidance, School Gardens developed considerably and would bear comparison with any similar gardens attached to elementary schools anywhere in the Empire.

In 1911, WILLIS retired and the then Botanic Gardens was constituted as a Department of Agriculture. LYNE arrived in 1912 as the first Director of Agriculture.

He took steps to develop the agricultural side of the Department, laying out fresh experiments upon the Experiment Station at Peradeniya, establishing another Experiment Station at Anuradhapura in 1914, a small trial ground for coconuts at Chilaw in 1913 and another in 1917 for tobacco in Jaffna. He also started, in temporary buildings, the Agricultural School at Peradeniya. The control of Co-operative Credit Societies was vested in the Department in 1913.

In 1916, he was succeeded by STOCKDALE and since that date the development of various branches of work have been undertaken. Experimental work has been developed at Peradeniya, and at Anuradhapura in limes, sisal, paddy and other crops. The Agricultural School at Peradeniya has been provided with a permanent home and with the requisite buildings for its students. An Experiment Station has been established at Jaffna, preparatory to the organisation of another Agricultural School for the North, and steps have been taken for the provision of adequate laboratories for the Research staff at Headquarters. An Entomological laboratory was erected in 1921 and a Mycological Laboratory is in the course of construction in 1922.

Experiments with tobacco were begun at Teldeniya in 1919 and with cotton in the Hambantota districts of the Southern Province in 1921 and the improvement and selection of paddy varieties on a large scale was undertaken by an Economic Botanist in 1920. The shortage of foodstuffs during the War period naturally directed attention to the necessity for the extension of the cultivation of foodstuffs in the Colony. The

work originally begun by the Agricultural Society in Agricultural instruction has been considerably extended and eventually absorbed by the Department of Agriculture. A large increase in the number of itinerating Agricultural Instructors has been sanctioned with a view to assisting village cultivators in the improvement of their cultivations of paddy and other food crops. Trained Supervising Officers have been appointed, demonstration plots opened, competitions begun and demonstrations in co-operation with cultivators organized. Extension of practical elementary training in nature knowledge has taken place through School Gardens and Co-operative Societies encouraged. Plant Pests and Diseases have received special attention and the establishment of an organised inspecting force for their control and for the education and assistance of agriculturists commenced. A Board of Agriculture was organized in 1921, with a view to bringing practical agriculturists into close touch with the Department and to providing the Department with the assistance and advice of those connected with all branches of the agricultural industry of the Colony.

The research staff has been strengthened and special enquiries made into the commercial possibilities of crops not cultivated at present in the Colony.

From small buildings in 1822, Peradeniya has developed an organization which has branches in all parts of the Colony dealing with many and varied aspects of the agriculture of the various districts of the Colony. Its progress has been gradual and has been along lines which ran parallel with the requirements of the Colony. In its early stages it gave first attention to the investigation of the flora of the country, subsequently it introduced large numbers of exotics and helped to build up the prosperous agriculture which has been so dependent upon these introductions. Subsequently it was called upon to deal with the pests and diseases of cultivated products. Later it made experimental investigations into the cultural and manurial requirements of various agricultural crops, began work upon the improvement of existing varieties of cultivated crops and took up the furtherance of agricultural education.

A Research Institute with fully equipped laboratories is in course of construction and provision is being made for post graduate work in all those branches of science most intimately associated with agriculture.

The following is a complete list of the Staff Officers associated with Peradeniya since its commencement :—

Superintendents, Royal Botanic Gardens.

1812-1814	William Kerr
1817-1825	Alexander Moon
1825-1827	Andrew Walker (Acting)
1827-1830	James Macrae
1830-1832	J. Bird (Acting)
1832-1838	J. C. Watson
1838-1840	J. G. Lees (Acting)
1840-1843	H. F. Normansell
1843-1844	W. C. Ondaatje (Acting)
1844-1849	George Gardner, F.L.S.
1849	G. Fraser (Acting)
1849-1857	G. H. K. Thwaites, C.M.G., Ph.D., F.R.S

Directors, Royal Botanic Gardens.

1857-1880	G. H. K. Thwaites, C.M.G., Ph.D., F.R.S.
1874-1877	M. M. Hartog, Asst. Director
1878-1879	Daniel Morris, M.A., Asst. Director
1880-1896	Henry Trimen, M.B., F.R.S., F.L.S.
1896-1912	J. C. Willis, Sc.D., F.R.S., F.L.S.
1900-1904	J. B. Carruthers, F.L.S., Asst. Director
1908-1912	R. H. Lock, Sc.D., F.L.S. Asst. Director

Directors, Department of Agriculture.

1912-1916	R. N. Lyne, F.L.S.
1916-	F. A. Stockdale, M.A., F.L.S.

Curators, Peradeniya.

1860-1862	W. Cameron
1880-1895	P. D. G. Clark
1895-1912	H. F. Macmillan, F.L.S., F.R.H.S.
1912-	H. F. Macmillan, F.L.S., F.R.H.S. (Supdt. of Botanic Gardens)
1914-	T. H. Parsons

Curators, Hakgala.

1860-1866	W. MacNicoll
1868-1881	E. J. Thwaites
1882-1904	W. Nock (Supdt.)
1904-1909	J. K. Nock
1911-	J. J. Nock

Scientific Assistants to Directors.

1898-1899	J. Parkin, M.A.
1900-1902	Herbert Wright, A.R.C.S.
1902-	Dr. H. Uzel
1902-1904	R. H. Lock, M.A.
1905-1907	A. M. Smith, M.A.

Photos. *Plâté Ltd.*

Plate 24. GROUP OF OFFICERS ENTRUSTED WITH THE WORK OF THE ROYAL BOTANIC GARDENS, PERADENIYA.

Entomologists.

1899-1913	E. E. Green, F.E.S.
1913-1915	A. Rutherford, M.A., B.Sc.
1914-1919	E. Speyer, M.A., F.E.S. (for Shot-hole Borer Investigations
1918-	J. C. Hutson, B.A., Ph.D.
1919-	F. P. Jepson, M.A., F.E.S., (Assistant)
1917-1919	N. K. Jardine, F.E.S. (for Tea Tortrix Investigations)

Mycologists.

1880-1882	H. Marshall Ward, B.A. (Cryptogamist)
1900-1904	J. B. Carruthers, F.L.S.
1905-	T. Petch, B.A., B.Sc.
1913-	G. Bryce, B.Sc. (Assistant)
1920-	C. H. Gadd, B.Sc. (Assistant)
1921-	M. Park, A.R.C.S. (Assistant)

Chemists.

1900-	M. K. Bamber, M.R.A.C., F.I.C., F.C.S.
1913-1917	L. E. Campbell, B.Sc., A.I.C. (Rubber Research
1922-	T. E. H. O'Brien, B.Sc. (Rubber Research)

Economic Botanists.

1919-1921	F. Summers, B.A., M.Sc.
1921-	R. O. Iliffe, B.A., Dipl. Agr. (Cantab.)

Divisional Agricultural Officers.

1920-	G. G. Auchinleck, M.Sc., A.I.C., F.C.S.
1920-	G. Harbord
1920-	N. Marshall, B.Sc., Agric.
1921-	F. Burnett, B. Agr.

Plant Pest Inspectors.

1919-	N. K. Jardine, F.E.S.
1921-	A. T. Reeve, A.R.C.S.

Managers, Experiment Stations.

1902-1907	H. Wright, A.R.C.S.
1904-1910	C. J. C. Mee
1909-1912	J. A. Holmes, M.R.A.C.
1910-1920	G. Harbord
1920-	T. H. Holland
1919-	H. A. Deutrom (Anuradhapura)

Superintendent of School Gardens.

1902-1920	C. Drieberg, B.A., F.H.A.S.

Tobacco Experts.

1914-1917	B. F. Scherffius
1918-1919	W. B. Wilson, B. Agr.

The DEPARTMENT OF AGRICULTURE is at present as follows :

ADMINISTRATION.

The Hon. Mr. F. A. Stockdale, M.A. (Cantab.) F.L.S., Director.

R. Aluwihare, C.C.S., Office Assistant.

C. Duff-Tytler, Shorthand Typist.

RESEARCH I.—LABORATORIES.

T. Petch, B.A., B.Sc., (London) Botanist and Mycologist.

J. C. Hutson, B.A. (Oxon), Ph.D., Entomologist.

R. O. Iliffe, M.A., Dip. Agr. (Cantab.) Economic Botanist.

G. Bryce, B.Sc. (Edin.), Assistant Botanist and Mycologist.

C. H. Gadd, B.Sc. (Birm.), Assistant Mycologist.

F. P. Jepson, M.A. (Cantab.) F.E.S., Dip. Agr. (S.E.A.C.) Ast. Ento.

M. Kelway Bamber, M.R.A.C., F.I.C., F.C.S., Consulting Agr. Chemist.

RESEARCH II.—PLANT PESTS AND DISEASES INSPECTORATE.

N. K. Jardine, F.E.S., Inspector of Plant Pests and Diseases (Central).

A. T. Reeve, A.R.C.S., Inspector of Plant Pests and Diseases (Southern)

RESEARCH III.—CENTRAL EXPERIMENT STATION, PERADENIYA.

T. H. Holland, Dip. Agr. (S.E.A.C.), Manager, Ex. Station, Peradeniya.

RUBBER RESEARCH.

M. Park, A R.C.S., Mycologist.

T. E. H. O'Brien, B.Sc., Chemist.

BOTANIC GARDENS.

H. F. Macmillan, F.L.S., F.R.H.S., Superintendent, Botanic Gardens.

T. H. Parsons, Curator, Royal Botanic Gardens, Peradeniya.

J. J. Nock, Curator, Hakgala Gardens.

DIVISIONAL EXPERIMENTS AND DEMONSTRATIONS.

G. G. Auchinleck, M.Sc. (McGill), A.I.C., F.C.S., Divisional Agricultural Officer, Southern.

N. Marshall, B.Sc., (Durham), Divisional Agricultural Officer, Northern

F. Burnett, B.Sc. Agr. (Oxon), Divisional Agricultural Officer, North-Western.

G. Harbord, Cert. Agr. (S.E.A.C.) Divisional Agricultural Officer, Central (Acting).

AGRICULTURAL BRANCH.

J. S. de Silva, Manager, Seed Store and Publication Depot.

Alexander Perera, Inspector of School Gardens, Central.

W. P. A. Cooke, Dip. Agr. (Poona) Farm School Officer, Jaffna.

J. C. Drieberg, Dip. Agr. (Poona) Farm School Officer, Peradeniya.

Muhandiram N. Wickremeratne, Secretary Board of Control, Co-operative Societies.

AGRICULTURAL BRANCH.—*Contd.*

C. Canagaratnam, Dip. Agr. (Poona) Assistant Manager, Experiment Station, Anuradhapura.

W. Molegoda, Senior Agricultural Instructor, Central Division.

J. V. Wickremesekera, Dip. Agr. (Poona) Assistant Farm School Officer, Peradeniya.

J. A. Alles, Dip. Agr. (Poona) Assistant to the Divisional Agricultural Officer, Galle.

K. S. Arumugam, Dip. Agr. (Poona) Agricultural Officer, Kurunegala.

E. W. Dias Bandaranaike, Dip. Agr. (Poona), Agricultural Officer, Badulla.

V. Canagaratnam, Dip. Agr. (Poona), Agricultural Officer, Batticaloa.

C. Wickremeratna, Lecturer School of Tropical Agriculture, Peradeniya.

L. A. D. Silva, Agricultural Instructor.

A. D. L. de Z. Jayatilaka, Inspector of School Gardens, Southern Division.

M. J. A. Karunanayake, Agricultural Instructor.

A. M. Muttucumaru, Inspector, Co-operative Societies.

J. R. Nugawela, Agricultural Instructor, Central Division.

A. Madanayake, Senior Agricultural Instructor, Ratnapura.

S. B. Yatawera, Inspector, Co-operative Societies, Central Division.

M. Amerasinghe, Insp. Co-operative Societies, Southern Division

N. Senathiraja, Asst. Farm School Officer, Jaffna.

N. Senaratne, Dip. Agr. (Poona) Agricultural Instructor.

A. V. Chelvanayagam do

V. Ramanathan do

C. P. Crispeyn do

P. B. Kapuwatte Probationer

A. B. Attygalle do

G. D. G. de Silva do

A. C. W. Jayawardena do

Walter Perera do

B. G. Buultjens do

C. W. Dangamuwa do

G. Madugalla do

N. Tambiah do

V. G. Perera do

H. C. Pieris do

J. Rambukpota do

D. T. J. Weerasooriya do

G. de A. Seneviratne do

W. F. de A. Seneviratne do

J. D. Nicholas do

T. C. de Sylva do

J. C. Abeywardena do

M. B. Boange do

A. Abeysinghe do

P. A. Gooneratne do

T. V. Thamotheram do

D. D. Banda Vernacular Instructor.

K. J. Perera do

H. S. Perera do

P. C. Rodrigo do

RESEARCH BRANCH.

H. L. Van Buuren, Dip. Agr. (Poona) Assistant to the Economic Botanist.

L. S. Bertus, Assistant to the Botanist and Mycologist.

C. Ragunathan, Dip. Agr. (Poona) Assistant to the Botanist and Mycologist.

G. D. Austin, Assistant to Entomologist.

E. J. Livera, B.Sc., (London) Assistant in Systematic Botany.

H. Ludowyke, Librarian.

E. de Alwis, Laboratory Assistant to Entomologist.

John Jackson, Sub-Inspector, Plant Pests, Central.

B. A. Pereira, Sub-Inspector, Plant Pests, Central.

M. S. Mendis, Sub-Inspector, Plant Pests, Southern.

R. A. Cameron Sub-Inspector, Plant Pests, Southern.

D. D. J. M. Silva, Plant Collector.

Edmund de Alwis, Museum Assistant.

Alfred de Alwis, Draughtsman.

A. G. Alwis do

G. L. de Silva do

M. R. M. Jaberatnam Probationer.

G. T. E. de Silva do

FIELD BRANCH.

H. A. Deutrom, Manager, Experiment Station, Anuradhapura.

G. E. Jayatillaka Hulugalle, Dip. Agr. (Poona), Assistant Manager, Experiment Station, Peradeniya.

T. B. Ranaraja, Actg. Assistant Manager, Experiment Station, Peradeniya.

D. F. de Silva Gooneratne, Asst-Curator, Heneratgoda Gardens.

K. J. Alexander Sylva, Foreman, Botanic Gardens, Peradeniya.

M. J. Fernando, Foreman of Economic Nurseries and Supplies for School Gardens.

S. de Silva, Acting Foreman, Experiment Station, Peradeniya.

D. E. Perera, Foreman, Hakgala Gardens.

Wilfred de Alwis, Senior Assistant Foreman, Peradeniya Gardens.

P. G. Saminathan, Foreman, Experiment Station, Anuradhapura.

T. Young, Foreman, Nuwara-Eliya Gardens.

D. A. W. Ranasinghe, Foreman, Govt. Gardens, Colombo.

P. J. Christoffelsz, Head Gardener, Queen's Cottage, Nuwara-Eliya.

G. E. Punchi Banda, Nurseryman, Peradeniya.

D. W. K. Gunawardena, 2nd Assistant Foreman, Peradeniya.

L. A. A. Perera, Assistant Foreman, Experiment Station, Peradeniya.

R. A. Siriwardena, Gardener, King's Pavilion, Kandy.

A. Jayasinghe, 3rd Assistant Foreman, Peradeniya.

T. B. Dissanayake, Gardener Queen's House, Colombo.

P. A. Kirihamy, Gardener, Cuddesdon, Nuwara Eliya.

A. D. Fredrick, Gardener, Temple Trees, Colombo.

G. A. Jothihamy, 1st Upper-Gardener, Peradeniya.

P. B. Kiridena, Nurseryman Hakgala.

T. de Silva, 2nd Upper-Gardener, Peradeniya.

Bernard de Alwis, 3rd Upper-Gardener, Peradeniya.

Punchibanda Keppitipola, Assistant Foreman, Experiment Station, Peradeniya.

K. M. B. Ranesinghe, Assistant Foreman, Experiment Station, Anuradhapura.

John	Gardener, Royal Botanic Gardens, Peradeniya
Siripina	do
Ammasie	do
Appuhamy	do
Sangaran	do
Manis	do
Williambanda	do
Ukkubanda	do
Arnolis	do

CLERICAL STAFF.

R. H. Pereira	Chief Clerk
H. L. Perera	Clerk
E. P. Chelliah	do
S. V. Solomons	do
M. W. B. Palipane	do
M. B. Neangoda	do
L. Ratnasabapathy	do
Y. A. Joseph Perera	do
W. L. P. Amerasinghe	do
D. D. J. de Silva	do
M. B. Medagama	do
W. A. W. Gunawardene	do
T. Chellappah	do
A. S. Samaraweera	do
S. Edwards	do
A. W. L. Samarasinghe	do
L. B. Kapuwatte	do
G. Gnanapiragasam	Clerk
K. Paramanathan	do
K. B. Halangoda	do
C. A. Samarasinghe	do
D. P. Jayatilleke	do
P. B. Seneviratne	do
W. D. E. Weeratne	do
Z. M. Sally	do
H. M. Rasnayake	do
K. S. M. Fernando	do
K. R. Samaratunga	do
A. P. Wijenarayane	do
A. B. Suriyadasa	do
M. Perera	do
M. D. H. Perera	do
B. D. Chandrasekera	do

GENERAL.

David de Silva	Guide	W. K. Hendrick	Peon
James	Peon	W. A. Richard	do
M. Peter	do	G. C. Lewis	do
G. Daniel	do	Badur Deen	do
M. Joseph Perera	do	U. Sarnelis	do
Don Peter de Silva	do	A. Anthonypillai	do
William Perera	do	K. P. Bodiya	do
B. K. M. Kalu Banda	do	M. James Fonseka	do

The Experiment Stations and Botanic Gardens under its control are as follows :—

MAJOR EXPERIMENT STATIONS.

1. Experiment Station, Peradeniya.
2. Experiment Station, Anuradhapura.
3. Experiment Station, Jaffna.

MINOR EXPERIMENT STATIONS.

1. Teldeniya Tobacco Trial Ground
2. Ambalantota Cotton do
3. Weligama Experiment Station
4. Bandaragama do
5. Balangoda do
6. Godakawela Experiment Station
7. Trincomalie do
8. Nalanda do
9. Dandagamuwa do

BOTANIC GARDENS.

Royal Botanic Gardens, Peradeniya.
Botanic Gardens, Hakgala.
Botanic Gardens, Heneratgoda.
Botanic Gardens, Nuwara Eliya.

Throughout its history Peradeniya has been served well by its Scientific Staff and by those Ceylonese that have been employed in its services. Full testimony has been given to the devoted work of Harmanis de Alwis Seneviratne, his descendants, and others. In recent years, larger additions to the staff have become necessary, and encouragement has been given to Ceylonese to take up agriculture as a profession. In course of time, Peradeniya will become an Institution concerned with higher education in tropical agricultural sciences as well as for research work. It will also expand its activities throughout the Provinces of the island. Several sons of Ceylon are in England undergoing training for positions in the Department of Agriculture as it expands—several with scholarships provided by Government.

The record of Peradeniya for the past hundred years is one of which the Colony and the Empire can be proud. The extension of agricultural science in recent years has been considerable. The future in Ceylon offers great possibilities, and the increasing demands from all classes of agriculturists for assistance and advice indicates the importance of the rôle that Peradeniya is called upon to play in the development and welfare of the Colony.

With the completion of new and fully-equipped laboratories further and improved facilities will be provided for botanical studies and for scientific research applied to agriculture. Visiting scientific workers will find accommodation available and graduates in science from the University College of Colombo will have opportunities for agricultural training and research.

Peradeniya may look back to its past with pride and forward to its future with confidence.

March 24th, 1922.

F. A. STOCKDALE.
T. PETCH.
H. F. MACMILLAN.